



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

HARVARD UNIVERSITY



LIBRARY

OF THE

PEABODY MUSEUM OF AMERICAN
ARCHAEOLOGY AND ETHNOLOGY

GIFT OF

Free Museum of Science and
Art.

Received 1897-1900.

577785

BULLETIN
OF THE
Free Museum of Science and Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

No. 1. PHILADELPHIA, MAY, 1897. Vol. I.

This Bulletin will be published four times a year, or as frequently as occasion may require. It will contain a résumé of the collections made by the Museum in its several sections, edited by the Director and Curators; notices of publications referring to the work of the Museum; and brief papers by its officers of general scientific interest.

An exchange of publications is desired with individuals and institutions.

The subscription price is One Dollar per year (four numbers).

Communications should be addressed to

THE EDITOR OF THE BULLETIN,
Museum of Science and Art,
Pennsylvania.

MUS. 120.37.01.
Spec. The ...
No. 1-77-11-0

THE object of this Bulletin is the publication
of new material acquired by the Museum
of Science and Art of the University of Penn-
sylvania with accounts of explorations conducted
by the Museum and original investigations based
upon its collections.

RECEIVED,
JUL 2 1897
PEABODY MUSEUM.

20 1. 2
49.2

THE PILLARS OF BEN.

BY DANIEL G. BRINTON, M. D.,

Professor of American Archaeology and Linguistics in the University of Pennsylvania.

The pillars of Ben are some curious monolithic monuments dating from remote antiquity, found in the State of Chiápas, Mexico. They have never been figured or fully described, nor is the purpose of their construction definitely understood. I shall begin what I have to say about them by quoting some references to them from local writers.

Núñez de la Vega, who was bishop of Chiápas about 1690, in describing the time-count of the Tzentals, a Mayan tribe, and the most numerous in his diocese, says: "*Been* is the thirteenth hero of their calendar, and it is said that he left his name inscribed on a stone erected in the vicinity of the town of Comitan."¹

A later writer, Emetorio Pineda, who composed a geographical description of the department of Chiápas about half a century ago, gives more extended information, as follows:

"*Been* traveled throughout the department, and left monuments of his journey at various points that he visited. The most noteworthy one, which still remains, is an upright stone in the shape of a tongue or lance-head, two and a half or three yards (*varas*) wide and two-thirds of a yard thick, on which he inscribed his name. There is another about six leagues west of the town of Comitan, near a place called Quixté, but which lacks the inscription. The natives pay it adoration, baring their heads and kneeling before it. They adorn it with garlands of leaves and fragrant flowers, so that at its base there is quite a pile of decaying vegetation from this source. These dry leaves they collect, and with them rub their breasts and carry them away as relics.

¹ *Constituciones Diocesanas del Obispado de Chiápas*, p. 10 (Rome, 1701).

"There are other stones of this same character on the haciendas of Rosario and Buenavista, in the Valley of Xiquipulas, in the midst of abundant ancient ruins; but these do not appear to be worshiped. Another is found in the deserted village of San Juan Tiltepeque, in the district of Tonalá, and it still serves as the line-stone between neighboring properties."¹

The last clause refers to the ancient tradition of the Tzentsals, that their ancestors were conducted into the region of Chiápas by their hero-god Votan. He divided the land and assigned it to their several clans, and it was Ben (or Been) who went about erecting these pillars to mark the boundaries of each.

This seems also referred to in the name "Tiltepec," from the Nahuatl, *tiltia*, to stop, to halt, and *tepec*, mountain or village—that is, the stopping-place or limit.² It is a short distance northeast from the modern village of Tonalá, and is still the site of important ruins. When Dr. C. H. Berendt visited



Fig. 1.

it—and, so far as I know, no other antiquary has explored that region—he found a platform mound supporting five large altar-stones ornamented with representations of men, fruits, etc., carved in relief, various stone rings, circular upright monoliths, etc., but nothing which could be definitely identified as the legendary pillar of Ben.

He was more fortunate in searching near Comitán. He there found one of the pillars referred to, and made the sketch of it which I insert (Fig. 1). It is pointed at the top, roughly circular, and

¹ *Descripción Geográfica de Chiápas*, pp. 7, 8 (Mexico, 1845). The Valley of Xiquipulas, or Jiquipulas, is in the district (partido) of Tonalá, and is thirty-two leagues southeast of San Cristóbal. At the discovery, it appears to have been occupied by some of the Pipiles, who spoke a dialect of the Nahuatl.

² Rovirosa, in his *Nombres Geográficos de Tabasco y Chiápas*, derives Tiltepec from Nah., *tilti*, black. This is a possible derivation, but has no special application.

without inscription. It is probably, therefore, the one referred to by Pineda as near Quixté. In height it is about ten feet above the soil (the artist, in copying Berendt's sketch, has made the man too tall). Dr. Berendt adds that at the time of his visit the stone was still an object of veneration by the natives, as it was when Pineda wrote.¹

The Abbé Brasseur de Bourbourg asserts that this pillar "resembles the monolithic pillars of Copan and Quiriguá;" but as he acknowledges that he never saw it, his opinion does not carry weight.² It is probable that these pillars were of quite a different character from the carved monoliths to which he refers.

To reach a more definite conclusion on this subject than can be obtained from the sparse Tzental legends, let us inquire what was known of Ben in adjacent tribes.

In the calendar of the Mayas of Yucatan, the thirteenth day of the ritual month also bore the name Ben, and its signification has occupied the attention of scholars. Pio Perez, in his discussion of the meaning of the Maya day-names, asserted that *ben* was a word which did not belong to the Mayan stock, but to the "Chiapanec,"³ though it is not clear what he meant by the latter term.

There is, however, a verb in both Maya and Tzental, *benel*, to go, the past participle of which has the sense "used up," "gone," as in the English phrase, "I feel utterly gone." This is the meaning Dr. E. Seler attributes to the day-name *ben*, though with what relevancy is not clear.⁴

I have elsewhere called attention to the fact that the day Ben of the Tzental calendar corresponds with the day *Acatl* of the Aztec calendar, which word means "reed;" and as in Tzental the term *cagh-ben* is applied to a dried reed or cornstalk, it is

¹ My quotations from Dr. Berendt, and also the drawing, are from his unpublished MSS. in my possession.

² *Histoire des Nations Civilisées du Mexique*, T. I., p. 96.

³ Perez's article was reprinted by the Abbé Brasseur in his edition of Landa. See page 373. The Maya always has the form *ben*; in Tzental the vowel is lengthened—*bën* or *been*.

⁴ *Zeitschrift für Ethnologie*, 1888, p. 77.

possible that there is here a reference to the signification "reed."¹

There are, however, other derivations which should be considered.

The word which, in the widest signification, means "man," *homo*, is almost the same in the three adjacent linguistic stocks, the Mayan, the Zapotec, and the Zoque. It is none other than this word *ben*, as is seen in this grouping:

Zapotec, *beni* (*beni niguio*, man; *beni guna*, woman; *bini*, boy).

Zoque, *ben-ne*, and *puen*.²

Mayan, *uinic*, *vinik*.

Here the Zoque, which is geographically intermediate between the Zapotecan and the Mayan stock, exhibits also the intermediate form of the radical—*ben*, *puen*, *vin*, or *vuin*.

As all, or nearly all, radicals in Maya are monosyllabic, the word *vinik* has been generally considered to be a composite theme, its two elements *vin* (*win*, *bin*) and *ik*, which latter is the word for wind, breath, or life. It is well known that in the older dialect the sounds *ben*, *been*, and *bīn* were interchangeable,³ so that it looks as if the identical radical was at the base of those three contiguous forms.

According to rather doubtful authorities, the Nahuas of Mexico had some reminiscences of the hero Ben. The historian Gay quotes an ancient hieroglyphic MS. once in the possession of Señor Herrera Perez, of the city of Mexico, which had been translated as recording that Ben was the son of Tanub, who was the youngest of the seven personages who conducted the celebrated migration from Chicomoztoc, "the Seven Caves."⁴

This Tanub journeyed to the far south. He is often mentioned as Tamub in the *Popol Vuh*, the sacred book of the Quiches of Guatemala, and its translator, the Abbé Brasseur,

¹ *Native Calendar of Mexico and Central America*, p. 20.

² Coruna y Colludo, in *Trans. St. Louis Acad. of Sciences*, Vol. IV, p. 37. The number of Zoques in the State of Chiápas still speaking their own tongue is about 25,000. See José M. M. Sanchez's *Gramatica de la Lengua Zoque*, p. 56.

³ See Pio Perez's *Diccionario de la Lengua Maya*, p. 23.

⁴ José F. Gay, *Historia de Oaxaca*, p. 53.

asserts that the clan named after him was conceived to have been the first to reach that territory.¹

It is scarcely necessary to add that such names as Tanub (Dan) and Ben have served to support the favorite theory of some that the "ten lost tribes" reached Central America; and we find the erudite Dr. Cabrera mentioning that the curate of Yatahuacan had in his possession "a little historical book of an Hebrew Indian nation, which may probably be that of Ben."²

In the quotation from Nufiez de la Vega, with which I began this article, that author tells us that Ben left his name inscribed on the pillar of stone. It would be interesting to have a copy of this inscription. But we may assume that it is the character in the calendar which corresponds to the day which leaves his name.

This is well known, and offers but few and unimportant variations in the Codices. The typical form is *a*, Fig 2;³ *b* is that given on the monuments; *c* is from the Codex Troano; and *d* from the late and corrupt Books of Chilán Balam.

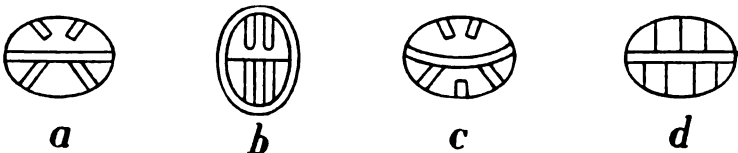


Fig. 2.

What object this figure was intended to represent remains uncertain. Dr. Seler, with his usual positiveness, insists that there is "no doubt" but that it depicts a straw or rush mat;⁴ but the well-known conventional picture of a mat, common in all the Codices, is, to my eyes, fundamentally different.

I have elsewhere suggested that the central transverse lines indicate a foot-bridge or passarelle, on supports, a

¹ Abbé Brasseur, *Le Popol Vuh*, Introd. p. cclix, and p. 207. Tamub is mentioned as chief of the second "nation" of the Quiches in the *Titulo de los Señores de Totonicapan*, p. 12 (Edition of Charencey, 1885).

² *Teatro Critico Americano*, p. 108.

³ Landa, *Relacion de Yucatan*, p. 204.

⁴ *Zeitschrift für Ethnologie*, 1888; pp. 77-80.

structure called in Maya *be che*, and that it is an imperfect rebus of the name *be-en*.¹

Although this is a possible explanation, there is another which has much in its favor, and that is, that the design represents the ridge-pole and rafters of a native house. Mr. Henry C. Mercer informs me that such a house is constructed by lashing the rafters to the ridge-pole and covering with grass or mats.

This explanation is strengthened by the similar designs on the Iroquois' wampum belts, oblique lines conventionally representing the *kanasta*, or rafters of the *kanasta tsikowa*, the "great frame-work," or "long-house," and symbolically the great league of the Iroquois confederacy.²

We should thus find in the design for Ben the symbolic representation of the tribal unity, with which the myths concerning his supposed personality connect him, assigning to him the separation and delimitation of the various clans or gentes.

The single sign *ben* in the Mayan Codices is frequently combined with others. I shall mention only one of such combinations, partly because it is the most frequent of all, partly because it bears upon a derivation of the name referred to above. This is the combination of the *ben* with the *ik* sign, as follows:

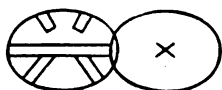


Fig. 3.

The word *ik* means wind, and the sign within the circle is supposed to indicate the four winds or wind-quarters. The

composite sign itself has been regarded by Dr. Seler as the ideogram for war.

Is it not the ikonomath or rebus for *vin-ik*, meaning man in general, or some allied sense of that word?

Other detached monoliths have been reported from Mayan territory, and the suggestion has been advanced by Stephens as well as later writers that they were phallic symbols. Such seems without doubt to have been the case with various ex-

¹ *Primer of Mayan Hieroglyphics*, p. 113. The word *abelel* in the Tzental means road, street, or path.

² See Horatio Hale, in *Journal of the Anthropological Institute*, Vol. XXVI, p. 244.

amples discovered by Theobert Maler and depicted in recent numbers of the *Globus*, where the form of the stones clearly indicated what they represented.¹

But we learn from Bishop Landa's work that the Mayas were also accustomed to erect pillars called *uah tun*, "stones set up," at their annual festivals to the Bacabs, or four mythical giants who were supposed to stand, one at each of the cardinal points, and uphold the sky.²

These Bacabs were in many respects identical with the four "year-bearers," Dominical days by which the calendar and its cycles were reckoned.

Among the Mayas of Yucatan, Ben was not one of these "year-bearers," or capital days; but in the indiction of the Tzentsals, Ben was the third of such days, the sequence being Votan, Lambat, Ben, Chinax,³ while in the Maya it runs Kan, Muluc, Ix, and Cauac. In neither of these calendars does the ritual year begin with a Dominical day, and for this reason Ben is counted as the thirteenth instead of the eleventh day, as it would otherwise fall.

That each of these day-names was applied to some hero-god or mythical being, we know not only from Nuñez de la Vega, but from the earliest authority we have on Mayan mythology, Father Francisco Fernandez, whose account has been preserved to us in the writings of Bartolomé de las Casas, the celebrated "Apostle of the Indians," who was bishop of Chiápas in 1547.⁴

I am inclined, therefore, to believe that these pillars were

¹ See *Globus*, October, 1875; also *Verhandlungen der Berliner Anthropol. Gesell.* 1895, s. 678; 1896, s. 467. Other examples in my *Nagualism*, pp. 49, 50.

² *Relacion de las Cosas de Yucatan*, pp. 207-9. There may possibly be an equivocation in the Maya expression. The word *tun* means a stone, but *ton*—"miembro genital del hombre adulto."

³ See the comparative lists in my *Native Calendar of Mexico and Central America*, p. 12.

⁴ Las Casas, *Historia de las Indias*, cap. 123. See, also, Remesal, *Historia de la Provincia de Chiápas*, Lib. V, cap. VII. The early legend describes these hero-gods as "clothed in flowing robes, with sandals on their feet, long beards, and bare headed." The long chin beard is often represented in the Mayan statues and reliefs, and is likewise mentioned in Aztec myths. Full beards, though unusual, are not unknown in pure-blooded American tribes.

originally erected to Ben in his rôle as one of the year-bearers, identified with one of the Bacabs, and thus with one of the cardinal points, and the wind which blew from it. This, of course, carried with it a whole train of symbolism, such as we find detailed in Mexican and Mayan mythology, but about which, in the Tzental land, we have but very meagre notices. It is to be hoped that further researches will be undertaken in the State of Chiápas, so rich in relics of the ancient inhabitants, which will aid in clearing up this, and other, interesting questions in its archæology.

THE SO-CALLED "BOW-PULLER" IDENTIFIED AS THE GREEK *μύρμηξ*.

BY DANIEL G. BRINTON, M. D.,

Professor of American Archæology and Linguistics.

In the *Essex Institute Bulletin*, Vol. XXVI, p. 141-166, Professor Edward S. Morse has a carefully prepared and abundantly illustrated article on "The So-called Bow-pullers of Antiquity," in which he discusses the use to which was put a curiously-shaped object occasionally found in Greek, Roman, and Etruscan tombs. It is usually labelled in museums of classical archæology a "bow-puller" or "bow-stretcher," *Bogenspanner*, *Tira archi*, etc. But as the conformation of various specimens renders this use for them impossible, a number of other applications have been suggested, as that it is a caltrop or tribulus, a spear-thrower, a snaffle or curb, a bit for a horse, and even a screw-driver and a lamp-wick holder! These and other suggestions are carefully considered by Professor Morse, who gives conclusive reasons for rejecting them all, but adds none of his own, saying (p. 142) that after "a study of it for over seven years I reluctantly yield the solving of the enigma to others, having got no nearer an explanation of it than when I first began."

Professor Morse's article and illustrations were copied, more or less fully, in various European journals (*Globus*, Bd. LXXI,

No. 10, *Nature*, etc.), but no explanation was offered of this mysterious object.

There is in the Museum of the University of Pennsylvania a beautiful specimen of this so-called "bow-puller," obtained by the late Mr. F. C. Macaulay from near Orvieto. A study of Professor Morse's pamphlet and of this specimen led me to a conclusion as to the use of this class of objects which I believe is incontrovertible.

They are examples of the *μῆρυνχες* of the Greeks, part of the offensive armor of the pugilist, which he chained or strapped to the leathern *cæstus* enfolding his hand, and which enabled him to deal a terrible and often fatal blow to his adversary.

This identification answers all the conditions of the problem as presented in Professor Morse's article. The implement is usually of bronze, in the form of two rings springing from a solid centre or body, from which rise some projections or points at right angles to the plane of the rings. Generally the external portions of the rings turn slightly upward. The purpose of this was that they could be lashed the more firmly on the *cæstus*. The projections are from three to five in number, and are sometimes long and sharp, in others mere knobs.

The decoration, such as cross-hatchings, ribs, phallic designs, etc., was always on one side, to wit, that turned toward the dorsal surface of the hand on which the implement was strapped, that side being the one visible to the observer.

The average length from one end of the rings to the other is about seven centimeters, of which the body, or central portion, where the projections are situated, occupies about two centimeters. This is the size which would adapt it to the average hand or clenched fist, covered with the *cæstus*.

The signs of wear show that the chain or strap by which it was fastened passed through one of the rings, from above downward, under the central piece or body, and from below upward, through the other ring. This indicates the manner in which it was attached to the *cæstus*.

The breakage or bending of the spines in some specimens, or

of the rings themselves, is easily explained by the violence to which they would be subjected in pugilistic encounters.¹

The beautiful specimen referred to, now in the Museum of the University of Pennsylvania, is shown in the subjoined en-



Fig. 4. Bronze Myrmex.
Museum of Science and Art.

graving. It is of bronze, delicately chased and ornamented with phallic devices in relief on the side corresponding to the dorsal surface of the hand. These devices either symbolized vitality and strength, or were simply meant as charms for good luck, as they are still regarded in southern Italy. The three

points rise about $1\frac{1}{2}$ inches above the body, and would thus constitute a most formidable weapon.

Fig. 4 shows the decorated aspect as the implement rests on

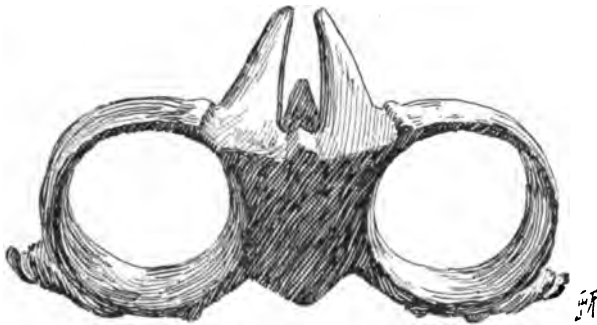


Fig. 5.

its base, and Fig. 5 the base with the two apertures through which the strap or chain was passed which lashed it to the cæstus.

¹ I announced briefly this identification in *Science*, April 16th, 1897, p. 614.

By fastening this specimen over a handkerchief wrapped around the proximal phalanges of the fingers, I demonstrated its use entirely satisfactorily to Director Mr. Stewart Culin and the Curator of the department, Mrs. Cornelius Stevenson, as well as to others who had read Professor Morse's description. This explanation answers every peculiarity of the instrument.

The adaptation of the implement to the purpose I have mentioned having been thus demonstrated, it remains for me to collect some material from classical writers, showing the use of the *μύρμηξ* and its form.

Pugilism (*πύγμα*) in classic times was both an ancient and an honorable art. Apollo himself conquered Ares in a fist fight, and the invention of the science of boxing was attributed to Theseus.¹ The Etruscans took especial pleasure in such contests, and they are often represented in the mural paintings of their tombs.²

Not only was it a game, a test of strength and skill, but it was a branch of the art of war, and for this reason Plutarch places it first in the ranks of gymnastic exercises,³ reminding us of the line of Lucretius :

Arma antiqua manus, unguis dentesque fuerunt.⁴

The *cæstus*⁵ (Greek, *ίμας*) was originally a strip of rawhide forming a bandage along the forearm and wrapped a number of times around the proximal phalanges of the fingers. It served both to protect the fist and to deal a heavier blow. To render it still more formidable, pieces of iron or lead were sewed on to the outer folds, thus adding to the force of the impact. This is familiar from both Greek and Latin poets ; as when Homer describes the match between two champions :

" Amid the circle now each champion stands,
And poises high in air his iron hands.
With clashing gauntlets now they firmly close," etc.

Iliad, Bk. XXIII, 684, sq.

¹ Krause, *Gymnastik und Agonistik der Hellenen*, s. 498. I am indebted to this learned work for many of the references in this article.

² K. O. Müller, *Die Etrusker*, Bd. II, s. 220. Second edition.

³ *Symposia*, Bk. II, Q. 4.

⁴ *De Rerum Nat.* Bk. V, 1282.

⁵ *Cæstus*, from *cædo*, not related to the Greek *κεστος*, nor was the latter word applied to the object in question.

So Virgil, in a familiar passage :

"—ingentia septem
Terga boum plumbo insuto, ferroque rigebant."

Æneid, Bk. V, 405.

The assertion in Smith's *Dictionary of Classical Antiquities* that such loaded thongs were used only in later times is contradicted by the quotation from Homer and by other early authorities.

The most formidable of all attachments to the *cæstus* was the *μύρμηξ*. It received its name from the projections, points, or spines with which it was armed (*μύρμηκία*, a prominence, a wart, etc.)¹ These were really weapons, and were so regarded, *μύρμηκες δὲ τὰ σπλά*, says Hæschyius. They were called *γυιοτοροί*, "limb-piercers," and Krause is undoubtedly right when he speaks of them as, "the most terrible of weapons adapted to the fist."²

Nor were they the invention of a later time. Professor Morse says (p. 148), "They belong to pre-classic and early classic times;" and in this he only confirms what Krause remarks: "The invention of this weapon belongs undoubtedly to an early period."³

That the use of it in the games of the arena continued to a late period we have the testimony of several writers. In one of the epigrams of Lucillius, an Italian Greek of the first century, we have two lines describing the effect of the sharp points of the *myrmex* on the defeated combatant:

*Κόσκινον ἡ κεφαλὴ σου, Ἀπολλοφάνες, γεγενηται
Οὕτως μύρμηκων τρυπηματα λοῖα καὶ ὀρθα :*

"Your head! O Apollophanes, has become a sieve,
From the straight and oblique holes made by the *myrmekes*."

¹ Though others derived it from *μύρμηξ*, an ant, "quoniam artus perforant ac mordicant formicarum modo" (*Stephanus, Thesaurus Græcæ Linguae*, s. v.). The comparison and the derivation are equally absurd.

² "Die schrecklichste aller Faustrüstungen mochte in den *μύρμηκες* bestehen." u. s., p. 506.

³ "Die Erfindung dieser Bewaffnung gehört zuverlässig einer frühen Zeiten." Ibid. s. 502.

This ghastly joke proves that the myrmex was furnished with projecting spines, which perforated the adversary's flesh.

Another and later Greek poet, Christodorus, of about 500 A. D., has left a poem describing the gymnasium at Byzantium and some of the contests exhibited in it. One of his pugilistic champions is referred to thus :

γυιοτορος μύρμηχας ἐμαίνετο χερσιν ἐλίσσων ;

"He grew furious, whirling in his hand the limb-piercing myrmeke."

Prof. W. H. Appleton, of Swarthmore College, to whom I am indebted for this quotation, points out that Liddell and Scott consider that in this passage the *cæstus* entire is intended ; but he believes the context gives my interpretation the preference.

It is evident that the term γυιοτορος, "*limb-piercing*," could not be applied to the blunt σφαيرαι, or masses of lead and iron, sewed (*insuti*) to the *cæstus*, but only to an implement with sharp points, of the character and shape of the so-called "bow-puller."

In these days, when the redoubtable champions of the fistic arena are required to wear soft gloves in their most decisive encounters, it shocks us to contemplate such a dreadful accessory to these always bloody and brutal contests. But the spectators in the Circus Maximus had no such squeamishness. Brutality and blood were what they demanded, and no device of either could shock their pallid senses.

Another use, less painful to our thoughts, has occurred to me for these lethal implements, and though I have not found conclusive authority for it in classic writers or classic art, it is worth mentioning.

In the ceremonial sacrifices, the animal, which may have been a sheep or goat, or, in the early times, a slave or captive, was usually killed at the altar by being knocked down ; and if the blow did not at once kill or at least stun it, the sacrifice was deemed inauspicious.¹ May not a main purpose of the myrmex have been, so to arm the fist on such occasions that its blow would be surely fatal ?

¹ Harwood, *Grecian Antiquities*, pp. 157-8.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

UNITED STATES.

Delaware Valley.—Mr. Henry C. Mercer, the Curator of the Section of American and Prehistoric Archæology, has just published in Vol. VI of the University series of publications in Philology, Literature, and Archæology (1897), *The Antiquity of Man in the Delaware Valley*, in which he reviews the evidence as to the existence of remains of Palæolithic or pre-Indian man in the Trenton gravels. The ancient argillite quarry discovered by Mr. Mercer at Gaddis Run, near Point Pleasant, Bucks County, in May, 1883, is described. This quarry, he states, was worked by the Lenni Lenape Indians probably as late as 1700. The general tendency of his argument and investigation is against the opinion entertained by some of the high antiquity of man in the Delaware Valley.

Florida.—The remarkable archæological collections made by Mr. Frank Hamilton Cushing at Marco, on the southwest coast, on his expeditions in the spring of 1895 and the winter and spring of 1896, are temporarily arranged in the Pepper Clinical Laboratory.

A detailed report by Mr. Cushing on his explorations, with illustrative plates and maps, will shortly appear in No. 153 (Vol. XXXV) of the *Proceedings of the American Philological Society*. The crania and other skeletal remains obtained by Mr. Cushing from the muck deposits and mounds are being studied for publication by Dr. Harrison Allen.

Lieutenant Hugh L. Willoughby, who has just returned from his scientific expedition across the Everglades, has presented several interesting archæological objects collected in

South Florida. From the Ten Thousand Islands he obtained perforated disks of coral-like stone (12,789-91), probably used as sinkers, and a piece of manatee bone (12,787) apparently cut for use as an implement. He has also presented two balls of deerskin (19,841-42), made and used by the Seminole Indians, which supplement the ball raquets, given last year by Mr. Henry G. Bryant.

Lieutenant Willoughby again succeeding in shooting two crocodiles (*Crocodylus Americanus*), one of which, thirteen feet long, he presented to the Biological School of the University. The skin is being mounted for exhibition.

He reports that the Seminoles do not appear to be diminishing in number, and those in the Everglades are living in precisely the same state as they did hundreds of years ago. They only come out to the coast to do a little trading, and then retreat to the interior. They still avoid all contact with the whites, except at such times. He collected a large Seminole vocabulary.

Georgia.—Clarence B. Moore has presented a burial jar, very perfect in form and $14\frac{1}{2}$ inches in height, with its contents, the skeleton of a child, from Ossabow Island, Bryan County.

Maine.—Mr. Mercer described the aboriginal shell-heaps on York River, which he explored in 1891, in Vol. VI of the University's publications in Philology, Literature, and Archaeology. The human bones, found in the shell-heaps, revealed traces of cannibalism.

Maryland.—The Indian ossuary on the Choptank River, Dorchester County, explored by Mr. Mercer in 1892, is described by him in the same volume.

Prof. Cope contributed an account of the physical characteristics of the skeletons, and Dr. R. H. Harte, of the University, of an examination of one of the skulls with reference to traces of disease. The report is illustrated with figures of crania (9680, 9685, 9697) in the Museum.

New Jersey.—Figure 6 represents a curious carved stone in the collection of Prof. Maxwell Sommerville, found near the Delaware River, below Montague.

It consists of a natural water-worn pebble, flat on one side, and about $2\frac{1}{2}$ inches in its greatest diameter. The upper surface has been carved with finely incised lines to represent an animal. The object seems unquestionably of aboriginal manufacture, and was probably used as a fetich by one of the tribes of the Delaware Valley.

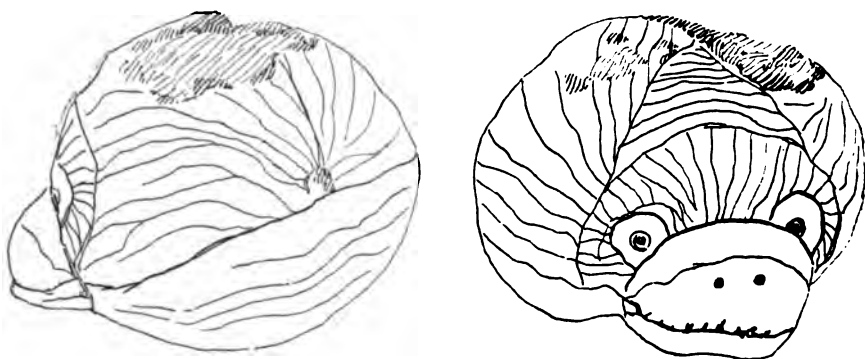


Fig. 6. Carved Pebble. Montague, N. J.
Summerville Collection.

New Mexico.—Dr. James H. Wroth, of Albuquerque, N. M., has presented a skull excavated by him in a ruined church among the remains of an extensive city some two hundred miles southeast of Albuquerque, known at the present day as the “Gran Quivira.” He writes that the Spanish records of the territory of New Mexico are full of allusions to this locality as being not only populous, but famed at that time for the richness of its mines. At present it is a desolate waste, although the remains of irrigation ditches can be traced for upwards of thirty miles toward the mountains. “The magnitude of these ditches and the care with which they have been constructed, together with the extent which these ruins cover, prove that at one time it must have been the centre of a thriving population. It is supposed to have been abandoned after the insurrection of the Indians (Pueblo Rebellion, 1680), to which they were driven by the cruelties of the Spanish conquerors. As in all Spanish-American ruins, the chief interest centres in the church or temple, probably the former, of which the walls and a part of the beams comprising the roof are still standing. They

show that the form of the building was a square, surrounded by smaller rooms each about fifteen feet square. Some two years since, while prospecting for minerals among

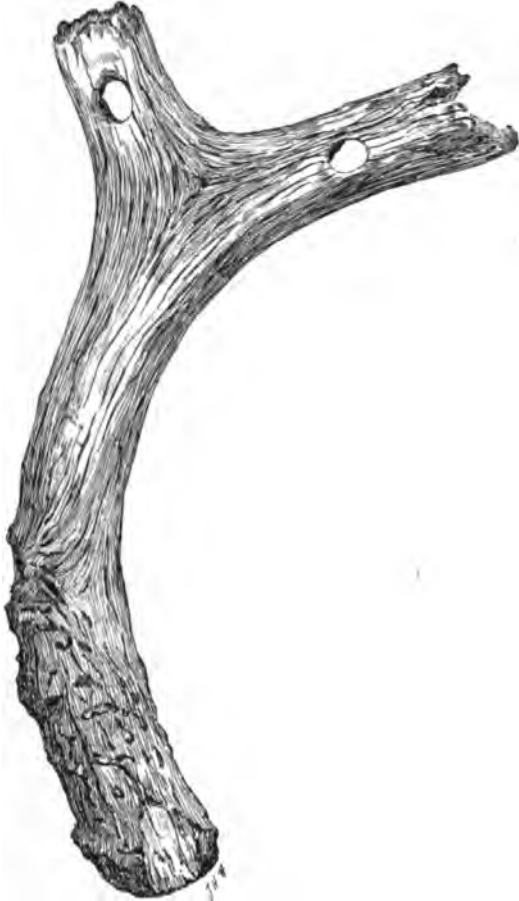


Fig. 7. Horn Arrow Straightener.
Length 9 inches. Pueblo Indians, New Mexico.
Museum of Science and Art. 19,843.

the ruins, an excavation was made in one of the rooms adjoining the body of the church, and within five feet of its main wall." At a depth of four feet below the foundation of the church proper we came upon a mass of broken skulls, of which

this and one other were the only ones intact. No other bones were found within the area of the excavation except the remains of skulls.

Mr. Cushing has presented an old Pueblo Indian arrow-straightener (19,843) (Fig. 7), made of deer-horn, with two perforations. This object, which measures nine inches in length, is of interest from its resemblance to the so-called "Bâtons de commandement," similarly perforated, found in French caves. The latter, by analogy with similar objects still in use in America, have been identified by Mr. Cushing as shaft-straighteners.

Mrs. Thomas A. Scott has given a series of ancient pans and bowls, rudely beaten by the Indians from copper, collected by Mr. C. W. Riggs at Santa Fé.

MEXICO.

Dr. William Pepper presented about 1,000 specimens of terra-cotta heads from Teotihuacan, with a large number of small objects of stone and terra-cotta from other sites, obtained by him on the occasion of his visit to Mexico in the fall of 1896.

R. O. Babbitt, Esq., of Jersey City, has given a seventeenth-century Spanish glazed jar (19,435) from Mexico. This jar, which measures seventeen inches in height, is decorated with broadly-painted figures of a rabbit, parrot, and bamboos, and is fitted with an iron cover with a lock.

In a letter accompanying it Mr. Babbitt states that it was brought to Mexico from Spain by a Padre Sanchez in the seventeenth century. It was used by him as a treasure-chest for the moneys of the church at the pueblo of Nacosari, in Sonora. The padre was killed by the Apaches in 1720. The jar passed into the possession of his brother, and was retained in the Sanchez family until 1884, when it was given by a descendant of the padre to Mr. Babbitt.

The latter also presented a fragment (19,434) of the tree of the "Noche triste," or "Sorrowful Night," the historic cypress, still standing in the Puente de Alvarado, in the City of Mexico, under which Cortez found shelter on the night of July 1st, 1520.

PERU.

Dr. Max Uhle, who has been engaged since February, 1895, in work of exploration in Bolivia and Peru for the Museum, has forwarded his preliminary report on the ruins of Pachacamac, where he has been working since March, 1896. His report is accompanied with twenty-seven plans and architectural sketches of the town; photographic negatives of the ruins (Nos. 278 to 524 and 75 to 78), and 3,575 catalogue entries of archaeological objects, many of which comprise a number of specimens, excavated from the cemeteries. The greater part of the latter have been received at the Museum, and are being unpacked, catalogued, and arranged in rooms kindly placed at the temporary disposal of the Department in the Pepper Clinical Laboratory.

Dr. Uhle describes the ruins of Pachacamac as the most prominent in the environs of Lima. "The town is very ancient, dating from the time when Tiahuanuco was flourishing. Miguel Estete, the companion of the first European visitor, Hernando Pizarro, mentions that at the period of his visit it seemed ruined and decayed.

"Pachacamac is situated on the northern side of the fertile valley of the Lurin upon the dry soil of the desert, which separates the valley of the Lurin from that of Lima, about 500 meters from the sea. The ruins differ from most of those on this part of the coast in being constructed in greater part of adobe bricks. The whole town is divided into quarters, two important streets still existing, which divide the town into four parts. Where they cross, the spot is enlarged into a court-yard or market place of irregular shape. The streets are bordered by high and thick walls, and while the streets may have been used for intercourse and traffic, as is shown by the surface of the walls on the eastern street being much rubbed, as if by the passage of many people, it would appear that they were of still greater importance as lines of separation of the quarters. This separation of the interior of the quarters from the streets is complete in nearly every part.

"There are very few entrances leading to the interior of the

quarters, perhaps not more than one in every quarter. On the north side a great wall incloses the town. It is probably some 900 meters long from west to east. There is only one opening on this line, on the spot where the great street, running from north to south, enters. But, as this opening is as wide as the street itself, it proves that the town was more accessible to those living outside, than the several quarters to those living in other quarters. In the last period of the ancient town, it would appear that the four quarters were not sufficient. The commencement of two other quarters are to be seen on the north side, outside the town wall, separated from the town wall by the commencement of a new street running east and west. There exist the remains of another wall on the outskirts of the town. Thus, about 700 meters from the town, we see a very thick wall, constructed of bricks, about 400 meters long, crossing an opening between two hills in the desert. This wall has the extraordinary thickness of 6.10 meters and shows a door-like opening, nearly in the direction of the northern street of the town. A greater part of it is buried by drifting sand. Its height is from four to five meters. A similar wall exists on the northeast side, running from north to south about 300 meters, and having a thickness of 4.5 meters. This latter wall is near the cultivated parts of the Hacienda of 'Las Palmas' in the valley of the Lurin, which here forms an inlet to the north. These two thick outer walls had no connection with each other. In the west we notice a kind of circumvallation, now much ruined, on the west side of the Hacienda Mamacona, this latter circumvallation forms three sides and seems to have been erected for the protection of the fields against the inroads of the sea, distant some meters from it. Traces of a similar wall are also recognizable on the southern border of the entire valley of the Lurin. It ran from west to east, and, although distant some kilometers from the town of Pachacamac, it is possible that it was erected by the inhabitants of that town for their protection."

It does not appear that Pachacamac was similar to modern towns of the civilized world in the arrangement of its buildings. The only regular arrangement consisted in the division into quarters by the streets. There are great and important houses,

but they stand isolated, and are joined to the walls of the streets without regularity. Some of the houses of the ordinary people are covered by drift sand, and others are destroyed. In general they were terraced, and had an open stairway constructed of bricks, leading from the courtyard in front of the houses to the terraces. The rooms were situated higher than the terraces on the remaining three sides of them. In the rear we find nearly always rooms of another type, with high walls, and with niches in the interior, but without doors. These rear rooms could only be entered by descending perpendicularly from the top of the surrounding walls. Dr. Uhle concludes that these rooms were inhabited by inferior people, belonging to the owners who lived in the higher terraces of the house, and infers from the number of such rooms that every owner of a terraced house always had about him all the inferior people of his clan. The general disposition of the whole town in quarters was to be subdivided in clans, not by lanes and streets, but by the more rude separation of the dwelling houses they occupied.

There exists still another important difference from our modern towns. The walls of the houses and those bordering on the streets and courtyards served not only for separating the rooms, streets, etc., but in general were the most important means of communication for the people of the town, and inhabitants of the houses, who preferred the tops of the walls to the streets and lanes, this was facilitated by the general thickness of the walls (1 to 3 meters), and was certainly to be preferred to going upon the plain, which was full of sand. The height of the terraced houses is to be explained by their being built to escape the masses of drifting sand, continually brought into the town by the wind. Dr. Uhle mentions in this connection that in the ancient town of Quilmes, in the interior of the province of Tucuman in Argentina, the house-walls also serve as the only "roads" existing there, separating the houses as the cell-walls do the honey-cells in a bee-hive.

"The eastern part of the town of Pachacamac impresses one as being less organized. We observe there fewer terraced houses (only two or three). The division of the whole into quarters was not carried out in this extreme section."

ASIA.

THE FAR EAST.

China.—Dr. Divie Bethune McCartee (M. D. 1840, A. M. 1848), of Tokyo, whose library of Chinese and Japanese books, presented in 1887, constitute the basis of the valuable collection of the literature of Eastern Asia in the University Library, has sent from Tokyo a rubbing (19,121) from the inscription of the Syrian or Nestorian monument at Si-ngan-fu in the province of Shen-si in Northwestern China.

In a letter, accompanying the gift, Dr. McCartee states that the rubbings from the inscription are used as writing copies to this day, the calligraphy of the Tang dynasty (A. D. 618 to 709) being still universally admired by Chinese scholars. The Syriac characters are generally taken for Manchu or Mongol characters, which they closely resemble.

With the inscription is a photograph (19,122) purchased with the rubbing at the *Presbyterian Press* in Shanghai. The photograph, in Dr. McCartee's opinion, is not taken directly from the monument, but from a rubbing which has been ingeniously pasted upon a wooden block.

Dr. Stuart Eldridge, of Yokohama, Japan, has presented a Chinese fire-lock (17,760) picked up in the field after the battle of Kui Chow in the recent Chinese-Japanese war. This gun, which measures 43 inches in length, and is painted red, formed part of a collection of ethnological objects given by Dr. Eldridge to the Museum, and transmitted through Dr. William H. Furness, 3d, and Dr. H. M. Hiller on their recent visit to the East.

Japan.—Important accessions have been received from Mrs. Phebe A. Hearst, of Washington, D. C., consisting of a carved and gilded shrine (19,875), a Buddhist temple screen (19,873), a group of Buddhist images (19,876), a Buddhist temple picture (19,874), a set of three Buddhist kakemonos (19,880), seventeen carved masks, used in the Bungaku dances, a suit of armor (19,879), helmet (19,877), saddle (19,878), stirrups (19,882), and horse's head-piece (19,881).

The shrine is a structure of wood five feet in height. Four gilded columns, around which dragons are entwined, support the roof, which is covered with gilded carvings, in which the plum flower, bamboo, and pine are combined with the stork and tortoise, emblems of longevity. The ridge-pole is surmounted by fish and dragons, between which rises a flame-shaped ornament. The temple screen, of carved and gilded wood, measures about ten feet in length and six feet in height. Its frame is of gold lacquer. In the centre are two sliding lattices, surrounded by elaborate gilded carvings of peonies, to which two representations of the Ho-ho bird are applied. Similarly carved and gilded dragons are attached to the base. From the character of the decoration it is to be inferred that the screen was made for one of the imperial temples in the seventeenth or eighteenth centuries.

The Buddhist images represent the Buddhist trinity. On the base of the central figure is inscribed: "An offering from Uji-no-meton and Uji-no-murono (twin sisters). Made by Hori-Kawa, Shijo Street, Kyoto."

The picture represents the Nirvana of Sakyamuni, the Buddha being represented in the usual manner, lying upon his left side, surrounded by his disciples and the principal personages of the Buddhist Pantheon, who are bewailing his death.

The kakemono measures twelve feet six inches by thirteen feet six inches, and was obtained in 1873 from the Buddhist temple at Shiba, on the outskirts of Tokyo, at the time of the partial transfer of the temple to the Shintoists. This temple was destroyed by fire on the 1st of January, 1874.

The following is an abstract of a memorandum accompanying the masks: "The Bungaku dance, in which the masks are used, is semi-sacred and pantomimic in its character, and usually performed by a single individual, although to this there are exceptions. It was under the direct patronage of the imperial court and the nobility of the highest rank." The names of the masks are given as follows:¹

¹See the paper on "No Masks," by F. W. K. Mueller, in the *Young Pao*, Vol. VIII, No. 1, March, 1897.

19,856. Bu Aku.	19,865. Riku Ghan.
19,857. Kan joraku.	19,866. Binga.
19,858. Han Ki.	19,867. Fujin.
19,859. San Jin.	19,868. Seko Seneen.
19,860. Ra rio.	19,869. Beyshime.
19,861. Dai Aku.	19,870. Gen jio raku nomen.
19,862. Bu Sho.	19,871. Tengu.
19,863. Han Ya.	19,872. Kokobo.
19,864. Bon den.	

The masks are old, carved with great skill, and painted in brilliant colors. Each has a Sanskrit character incised in the wood on the inner side.

The suit of Japanese armor is one of the much-prized red-braided silk suits, and bears the crest of the Daimio Ii-Kamon-no-Kami Nāosuké, a device formed of the Tachi-bana (bitter orange) and Sakura (cherry blossom). Concerning the origin of the red-braided silk suits, it is related that in the year 1600 a brilliant and decisive battle was fought at Sekigahara between the troops of Ieyasu (the first of the Shoguns) and those of Hideyori. The former was led by Ii-no-wo-maso, who wore a suit of white silk braid. At the close of the battle the victorious Ii-no-wo-maso received so many wounds that his armor was literally stained with blood. Ieyasu, in commending him for his valor, presented him with a red silk-braided suit as a recognition of his personal bravery, adding his sentiment as to the unfitness of a white-braided suit to a general of his fearless character. It may be remembered that the other Samuri wore suits with red silk braids, but the red was not of the same distinctive tint as that originated and worn by the Ii family.

Ii Kamon-no-Kami was regent during the interval preceding the election of a new Shogun, and a man of rare sagacity and favorable to foreign intercourse. He was assassinated in broad daylight by the emissaries of the Prince of Mito, who was desirous of seating his own son on the throne in the year 1861. There was exhibited at the World's Columbian Exposition in 1893 a life-size statue of the Baron Ii in the full costume of his

rank, sculptured by Shima Sekka, who afterward presented it to the United States National Museum, where it can now be seen.¹ The string of the head-dress and the tablet held in his hand are those which were actually used by this illustrious man.

From the account accompanying the armor presented by Mrs. Hearst, it appears that it probably belonged to a general in the service of the preceding Daimio Ii.

These objects were exhibited in Horticultural Hall on January 15th and 16th, on the occasion of a lecture by Professor Edward S. Morse, of Salem, on "Japanese Archæology" before the University Archæological Association, when a loan collection of Japanese art was displayed.

An interesting feature of this exhibit was an old Japanese drum, contained in a pavilion of unpainted wood, lent to the Museum by Mrs. William Frishmuth, whose valuable collection of musical instruments are intended for the new Museum. The structure measures eleven feet in height, and is surmounted by a gilded drum, upon which a cock is perched.

Objects were loaned for the exhibition (which was open free to the public on the Saturday following the lecture) by Mrs. John Harrison, Mr. John T. Morris, Mr. Carl Edelheim, Mr. Edward Starr, and Messrs. George and Edward Farnum, the latter contributing a beautiful series of ancient embroidered temple hangings.

Mr. Edward Starr has given a Japanese priest's baton, or *ni-yo-i* (19,422), of vermillion-lacquered carved wood. This interesting object is twenty and one-half inches long and one and one-half inches in width, nearly rectangular in section, the inner side being slightly concave and the outer correspondingly convex. It is bent in a graceful curve, like a bow, near the upper end, which terminates in a scroll-shaped knob. A gilded dragon is painted around the baton, which is pierced about one-third the distance from the lower end for a purple silk cord, tied in a peculiar knot and having the ends intertwined and terminating in tassels. The *ni-yo-i* is used in Japan by the

¹ See *Report of the United States National Museum for 1884*, p. 621.

high priest of the Zen sect, who employs it to correct the catechumens. It is an importation into Japan from India by the way of China. In the latter country it is given at marriages and to friends for good luck, and is frequently inlaid with jade and beautifully carved. Its name, *ni-yo-i* (Chinese, *ju i*), means literally "as you wish." In India it forms one of the *Sapta Ratna*, or "Seven Precious Things," which constitute the insignia of a Tchakravatti. The *ni-yo-i* is analogous in form to the Etruscan lituus, or augur's wand. Its origin presents a problem of peculiar interest and difficulty. In the opinion of the writer of this note, it is not unlikely to have been derived from the "throwing stick," or, possibly, the bow.

Dr. McCartee has presented an interesting Japanese sword (19,424), given to him by Mr. Takahashi Kenzo, now Chief Secretary to the Cabinet of the Imperial Government, and formerly principal editor of the *Official Gazette*. He gave this sword to Dr. McCartee about twenty years ago, when the Doctor gave up his professorship in the University of Tokio, and Mr. Takahashi was one of his pupils. Mr. Takahashi said the sword had been in his family for three hundred years. Mr. Benjamin Smith Lyman, who has examined the sword, states that it looks old, and worn quite narrow by repeated grinding. There is no inscription on the tang. The grooves of the blade run far along the tang. The sword seems, therefore, to have been shortened from the length of a *katana* proper (30 to 33 inches) to that of an *ipponzashi* (single sword) worn by tradesmen and farmers, and between the *katana* and the *wakizashi* in length, or, say, about 25 inches. The blade is at present very much tarnished and rusty, so that it is hardly possible to judge of its quality.

Dr. John Marshall, Dean of the Medical Faculty, presented a pair of modern Japanese badger fur slippers (19,805).

Included in the collection, presented by Dr. Stuart Eldridge are two Ainu mustache sticks (17,740 and 17,741), an Ainu bow (17,765), quiver and arrows (17,751), and two Ainu hunting knives (17,743 and 17,744) in carved scabbards.

Korea.—Dr. E. B. Landis has sent from Chemulpo two "name tablets" *ho-hpai* (19,845 and 19,846) consisting of small tablets or labels of unpainted wood, $3\frac{1}{2}$ inches in length by $\frac{1}{2}$ broad and $\frac{1}{16}$ thick. The following account of the *ho-hpai* was given by Mr. Culin in work on *Korean Games*:

"When a free-born boy reaches the age of fifteen he has a small wooden label cut, which he carries with him. This label is called *ho-hpai* (Chinese *hòp'ái*) 'name tablet,' and is made of pear wood or mahogany, and is about two inches in length by one-half in breadth. It is inscribed in Chinese characters. Across the

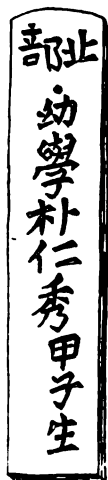


Fig. 8. Ho-hpai, "name tablet."
Length $3\frac{1}{4}$ inches. Korea.
Museum of Science and Art. 19,845.



Fig. 9. Ho-hpai, "name tablet."
Length $3\frac{1}{4}$ inches. Korea.
Museum of Science and Art. 19,846.



top is the name of the *pou* (Chinese: *p'ü*) or ward, to which the boy belongs. There is a line below the designation *han-ryang* 'leisure fellow,' that is, 'not in service,' and the boy's name with the date of his birth. The date on which the label is made is cut on the reverse. This label must be sealed by an official of the treasury, who brands it with a hot iron, and registers the boy's name and other particulars. When the boy enters the *tjin-sä* (Chinese: *tsun'sz*), he has another label cut, this time of boxwood, with his proper title instead of *han-ryang*. Upon passing the military or civil examination, the

label is cut from black horn, and upon obtaining the first grade, an ivory label is permitted. The free-born boys jealously guard their right to carry the *ho-hpai*."

Dr. Landis' letter, accompanying the gift, furnishes some interesting particulars. He says: "I have simply had reproductions made, as they are not in use since the war. They are, however, exact reproductions, with the exception of the magistrates' seal, which was always burnt in on the back. At the top, reading from right to left, is the place of residence. Below are the words *Yon-hak* and *Han-ryang*. These refer to the class of society to which he belongs. The first is 'patrician,' and the second 'plebeian.' After this follows the name and surname, and in the lower corner the year of the birth. On the back is the year when the *ho-hpai* expires. It is renewed every three years. There is another kind, called *yo-hpai*, which was used by the servants of the various officials as proof of identity when drawing their monthly wages, which was always in kind. I will send them to you by the next mail, as at present they are not finished."

Siam.—Prof. Maxwell Sommerville, the founder and curator of the Section of Glyptics, has just published an account of his travels in Siam in 1895. (*Siam, on the Meinam River from the gulf to Ayuthia; together with three romances illustrative of Siamese life and customs*. J. B. Lippincott & Co. 1897.)

The author collected on this visit to the East a large number of East Indian amulets and talismans, and the entire furnishings of a Buddhist temple. The latter will be erected in one of the halls of the new Museum.

ISLAND-ASIA.¹

The valuable and interesting collection from Borneo and the Liu-Chiu Islands made for and presented to the Museum by Dr. William H. Furness, 3d, and Dr. H. M. Hiller, on their recent visit to the East, has been temporarily arranged for ex-

¹ From the German "Insel-Asien," which has been adopted by most ethnological writers.

hibition in the upper hall of the Wistar Institute, the crowded state of the Museum not permitting its display.

Dr. Furness went out in the interest of the Museum, and was accompanied by Dr. H. M. Hiller, of Philadelphia. They were joined in Yokahama by Mr. James Wilder, of Honolulu. The party started for Borneo in October, 1895, and stopped on the way for a short time at the Liu-Chiu Islands. They voyaged in a schooner which they bought for the purpose in Yokahama. After a stay of some weeks in the islands they went to Hong-Kong, where they disposed of their schooner, as they were told that it would be of little use on account of light winds. They therefore went by steamer to Singapore, and thence sailed about May 1st to Kuchang in Borneo. The two explorers returned to Philadelphia in December, 1896, after an absence of over a year. An account of their ethnological collections will appear in the next number of the BULLETIN.

BABYLONIA.

The growth of the Babylonian Section of the University Museum during the last few years has been closely connected with the Imperial Ottoman Museum in Constantinople. In 1893 Professor Hilprecht was requested by the Ottoman Government to submit a report on the steps necessary for protecting the numerous Babylonian ruins from pillage and destruction by the Arabs, to reorganize the Semitic Section of the Imperial Ottoman Museum, and to prepare a catalogue both of the Babylonian and Hittite collections.

The time and work required for the carrying out of this mission and the interests of the Babylonian Expedition of the University, made it necessary for the Curator to spend the greater portion of summer and fall during 1893, 1894, and 1896 in Constantinople and in Asia Minor. In acknowledgment of his services, His Majesty, the Sultan, presented a very large number of valuable antiquities excavated in Nippur, to the Museum of the University, through its Curator, granting him at the same time permission to have all such objects in the different sections of the Imperial Museum as desired by him for scientific research cast for our University. In consequence of

this generous offer a number of casts have been added to our Semitic collections, among them the stele of Naram-Sin (about B. C. 3750); the Phenician inscription on the sarcophagus of King Tabnit, of Sidon, excavated by Hamdy Bey (about B. C. 300); the only cuneiform inscription so far excavated in Palestine (about B. C. 1400); a number of Hittite inscriptions, Sabæan and Minean monuments, and several important cuneiform documents, excavated by the American, English, French, and Ottoman expeditions in Babylonia and Assyria.

The latest results of the University's expedition in Nippur, excavated by its present director, Dr. J. H. Haynes, during 1895 and 1896, for some time past have been on their way from Jedda in Arabia to Constantinople, and arrived at the Imperial Museum very recently. They comprise about 120 large boxes of tablets, bricks, pottery, and objects of art of the earliest period of Babylonian civilization and over 30 large, well-preserved sarcophagi. To examine them, Professor Hilprecht is expected to start again for Constantinople.

About five months of concentrated work will be necessary to unpack, examine, and catalogue these antiquities. In connection with this work the Professor has been requested by the Museum of the University to arrange for their publication at an early date, and to obtain an extension of the University's firman for renewed excavations in Nippur in the fall.

When in 1888, at the initiative of Professor Hilprecht, the first section of the Museum of Archæology of the University of Pennsylvania—its Semitic Section—was created, he himself being appointed its Curator by the Trustees of the University, this step was taken in view of the Curator's urgent request for objects illustrating life and customs of the various peoples of the Old Testament to the growing number of theological and philological students in the University. The cordial relations which were established between the great Ottoman Museum and the University gave a fresh impulse to the growth of this Biblical Museum. No other nation of the ancient world stood in such a close contact with the Hebrews as the Babylonians and Assyrians, whose monuments have

done so much to prove the historical accuracy of the Old Testament books.

It was therefore natural that the Babylonian collections should form the nucleus of this Museum, especially as up to date very little has been done in the line of systematic excavations in Palestine. But through Hamdy Bay's praiseworthy efforts, two other nations, the Hittites and the Phenicians, and through the four successful and dangerous exploring tours of Dr. Edward Glaser of Munich, the Sabeans, and Mineans, and also through the excavations in Senjirly by the Berlin Oriental Committee, the Northern Aramean tribes can now be studied from their own monuments. Professor Hilprecht has, therefore, been busy during the last few years to secure casts of the most important monuments of these five nations from Constantinople, Berlin, and from private collections, to strengthen the Biblical Museum which he has been planning for nearly ten years.

Owing to the lack of space in the present Library Building, most of these casts and thousands of Babylonian originals had to be stored away, inaccessible to students. As soon, however, as the new Museum building will be opened, an especial room will be set apart for a systematical and historical illustration of the life, customs, burial modes, etc., of the Old Testament people. This room, to be known as the Biblical room, will stand in organic connection with the other Semitic Museum, so that those monuments which really illustrate the Old Testament, will be grouped together.

The Imperial Ottoman Museum, which receives the chief results of all excavations and explorations carried on in its vast domain, has gracefully consented to support Prof. Hilprecht in his efforts by furnishing him all the casts necessary. A pair of casts of two large Hittite sphinxes, which he selected last summer for flanking the entrance to the Biblical room, are in course of preparation now in Constantinople. A number of coins, mentioned in the New Testament, have already been procured by the Curator, and it is his intention to make new, vigorous efforts in connection with his proposed trip to the East in the course of this summer to complete his collections by procuring,

among other objects, a number of photographs of recently discovered Bible manuscripts, especially of the famous Purple Codex, obtained by the Czar of Russia last year after Prof. Hilprecht, knowing its hiding place in Asia Minor, had tried in vain in the previous years to raise the necessary money for its purchase in Philadelphia. A Jewish Synagogue roll of the Pentateuch and a lectionarium, such as he bought recently for a theological seminary in America, and many other antiquities illustrating the contents of the Bible, will be provided.

The recent additions to the Museum are the following :

1. The large collection of Babylonian tablets, bricks, sarcophagi, etc., referred to above as having been presented by His Majesty, the Sultan.

2. A collection of over three hundred beautifully preserved Neo-Babylonian tablets, dated in the reigns of Artaxerxes I and Darius II, presented by Prof. H. V. Hilprecht, and with other antiquities previously presented by him, known as the "Hilprecht Collection."

3. Through the efforts of Dr. William Pepper, a valuable collection has been presented to this section by Miss L. F. Massey, of Toronto, in memory of Hart Almerrin Massey. This collection was obtained by the Curator in the East, and comprises about twenty new Kappadokian cuneiform tablets and pre-historic celts and smaller objects from the same region ; the earliest Babylonian document in existence (about B. C. 6000) ; a beautiful long inscription of King En-gegal of Tello, known only from this stone (see Hilprecht, *Zeitschrift fuer Assyriologie*, XI, p. 330, f.) ; a new document referring to Sargon I (B. C. 3800), and the famous vase of Artaxerxes in four languages.

4. A number of bricks of Nebuchadnezzar II (B. C. 600) ; fragments of Assyrian marble slabs and a few other objects presented by Mrs. Phebe A. Hearst, of Washington.

In connection with the Babylonian acquisitions, it should be mentioned that Mrs. Phebe A. Hearst, who very generously has contributed to various sections of the Museum, deposited an exquisite collection of Greek antiquities in the Museum, in the acquisition of which the Babylonian Curator was instrumental.

It contains sixteen good sized painted Grecian vases, of which ten are entirely intact, and formed part of the collection of the last Khedive of Egypt; a silver Venus (used as a hairpin); a silver dareicos, found in Kutahia, Asia Minor; a well-preserved bronze vase of the Hellenistic period, a small bronze mask, a bronze handle of a kantharos, representing a satyr and a mouse, and two very valuable small bronze statues in excellent preservation, one of rare beauty, and the other of a unique design.

The second part of the Curator's *Old Babylonian Inscriptions, Chiefly from Nippur* (being Vol. I of Series A of the Babylonian Expedition of the University of Pennsylvania), was published by the American Philosophical Society in the course of the last year. He also, in connection with a number of American and European scholars, published *Recent Researches in Bible Lands* (John D. Wattles & Co., Philadelphia), to which he contributed the historical sketch of "Babylonian Excavations by American, French, and Ottoman Expeditions during the last years." For the *Holman S. S. Teachers' Bible* he wrote and illustrated the archæological section. Vol. IX, Series A of the Babylonian Expedition of the University of Pennsylvania (Tablets, dated in the reign of Artaxerxes I, by H. V. Hilprecht and A. T. Clay), published through the liberality of Mr. Eckley B. Coxe, Jr., is in press now, and will appear at the beginning of June. Vol. I, part 3, Vols. II, VI, X, and XI, of the same series A of the inscription work, are in course of preparation. Dr. J. H. Haynes' *Narrative of the Latest Excavations in Nippur*, as expanded and supplemented by H. V. Hilprecht, will be published at the end of this year. The first part of Series B, Vol. II, *Babylonian Seal Impressions from Dated Documents*, by H. V. Hilprecht, will appear at the end of 1897. *Aramaic and Hebrew Bowls*, by R. Gottheil and Morris Jastrow, Jr. (Series B, Vol. IV), in course of preparation. Other volumes will follow as soon as time and material permit. Dr. John P. Peters' work, *Nippur; or, Explorations and Adventures in the Euphrates*, in two volumes, is also announced, Vol. I being nearly ready.

AFRICA.

EGYPT.

Among the important historical pieces which, through the kind interest of Professor Flinders-Petrie, have recently found their way into the possession of the Egyptian section of the Museum is an inscribed block of limestone, still showing faint traces of the original painting, which was secured by him at Zowaydeh, near Ballas (Upper Egypt).



Fig. 10. Inscribed block of Limestone with name of King Ra-Seshe-men-taui.
Egyptian Section.
Museum of Science and Art.

This block gives the full names of a king, Ra-Seshe-men-taui, Son of Ra-Tahuti, of whom but a single vestige until now was known.

The existence of a King Tahuti was recognized some years ago by Professor Erman, who discovered this name mentioned as that of a King of the divine Solar line upon a canopic box in the Berlin Museum. (*Eg. Zeitschrift* XXX, 4.)

Our monument now furnishes us with the throne name of the monarch, which seems to locate him in the obscure period of the thirteenth dynasty (2500–2200 B. C.), as two of the Sebekhoteps bore similar names—i. e., Ra-seshe-Khu-taui and Ra-seshe-suaz-taui. Mr. Maspero, however, regards it as likely that his reign was not far distant from that

of Ua-ab-ra-Her (see *Maspero Rev. critiq. d'Hre et de Littérature*, 15 février, 1897), whose mummy, funeral outfit and marvelous Ka-statue were recently discovered by Mr. de Morgan in his royal tomb at Dashur.

This interesting block had been trimmed and re-used in some later building, and was brought to Mr. Petrie whilst he was working at Deir during the winter of 1895 by a Fellah, who had come upon it when digging for sebakh.¹—Sara Y. Stevenson, Curator.

Savage Tribes.—In 1890 Dr. Robert H. Nassau collected for the Museum a representative series of objects—weapons, utensils, musical instruments, etc., together with eleven crania from the Fans of the Ogove River. Another important collection of African ethnology, comprising 145 catalogue entries (18,882 to 19,036), has recently been deposited by Dr. A. Donaldson Smith. These objects were obtained by Dr. Smith in 1894 and 1895 on his expedition to the Lakes Rudolf and Stephanie in East Africa. The following tribes are represented: Somali, Arusa Galla, Dogodi, Gère Galla (Badi), Gère Galla (Libin), Sakuya, Gabbra, Boran, Amara, Konso, Arbore, Burle, Dume (Pigmies), Bunno, Reshiat, Kere, Mela, and Rendile.

A descriptive catalogue of the collection, prepared by Mr. Culin, has been published by Dr. Smith in his work, *Through Unknown African Countries* (Edward Arnold, 1897), in which also the greater part of the objects are figured from drawings prepared in the Museum. In addition to the ethnological material, Dr. Smith also deposited in the Museum a collection of eighty-two heads, skulls, tusks, and skins (19,037 to 19,089) of large mammals shot by him on his expedition, which have been in part described by Professor Samuel N. Rhoads in the *Proceedings of the Academy of Natural Sciences of Philadelphia*, 1896, p. 517. The entire collection is now displayed on the landing of the tower stairway in the Library Building.

From Mr. Seaton-Karr a series of eighteen rude-flaked stones (13,219 to 13,236), collected by him in Somaliland, have been

¹ See *Nagada and Ballar*, 1895, p. 8.

obtained by exchange. These objects, regarded by Mr. Seaton-Karr as palæolithic, are described and figured in the *Journal of the Anthropological Institute*.

EUROPE.

RUSSIA.

Early last year it was foreseen by Dr. William Pepper, the President of the Department of Archæology, that the festivities attending the coronation of the Czar at Moscow, when the representatives of the Russian Empire were expected to assemble, would afford an unusual opportunity to collect ethnological material. Through the liberality of Mrs. Hearst it became possible for the department to send Mrs. Zelia Nuttall on a mission to represent the Museum.

Mrs. Nuttall was peculiarly qualified for this important and arduous undertaking. Speaking the Continental languages fluently, she was also personally acquainted with the leading archæologists of Europe.

She has pre-eminently distinguished herself by her archæological and ethnological studies in America, and her work on the Mexican Calendar, which she first presented at the Congress of Americanists at Huelva, has attracted the attention of the entire scientific world.

Provided with letters from the Department of Archæology, the Mayor of Philadelphia, and the State Department at Washington, she arrived in Moscow in May. Here she at once arranged important exchanges for the Museum with the principal scientific institutions of that city. From Professor Anutchin, the Director of the Anthropological Museum, she obtained by exchange a set of casts illustrating the prehistoric stone and bronze implements found in Russia. Mrs. Nuttall had sent to her from Philadelphia three cases containing American prehistoric implements, so that she was enabled to proceed directly with the negotiations. An equally important exchange was made with Professor Müller, the Director of the Ethnological Museum. At the Historical Museum she arranged with Mr. Sissoff to have models made for Philadelphia illustrating the

different forms of burial, typical of different ages and civilizations of prehistoric Russia. The publications presented to Mrs. Nuttall in Moscow form a most important addition to the Museum Library. Foremost among them are the superbly illustrated reports of the Imperial Archæological Russian Commission, which were transmitted from its President, Baron von Tiesenhausen, of the Hermitage Museum, through the Department of State at Washington. With them were two silver ingots found in the Government of Mohileff in 1893.

The Archæological Society of Moscow also gave a set of its publications, consisting of between forty and fifty volumes, nearly all with beautiful plates. These works are indispensable in the study of the prehistoric remains of Russia. The Countess Oubaroff, President of the Society, was specially helpful. She presented a number of books by her late husband, Count Oubaroff, whose scientific work she continues, as well as a collection of pottery fragments and bone and stone implements from excavations made by the Count on his property in the Government of Vladimir. Professor Ilovaisky, the foremost historian for Russia, who has written all the school histories, gave a complete set of his publications.

At Moscow it was reported that the preparations for the Fair and Exposition at Nijnii Novgorod were much delayed, and that while ethnological material could be obtained there, it would not afford much opportunity to secure archæological collections. Mrs. Nuttall accordingly determined to visit Kiew in the interests of the Museum. Kiew is a thirty hours' ride from Moscow and distant 566 miles. Here is the famous Cathedral of St. Sophia, the oldest in Russia, and the monastery, the Kievo-Petcherskaya, which is the chief establishment of its kind in Russia, and resorted to annually by about 350,000 pilgrims. Mrs. Nuttall purchased some of the curious wooden spoons carved with fish, the emblem of Christ, and a hand bestowing benediction, which are made for sale to these visitors. At Kiew an exchange of publications was effected with the Société du Chronique Nestor of the University, and Vladimir Antonovitch, the Professor of Anthropology at that institution, presented his valuable archæological map of the Govern-

ment of Kiew. He also engaged to collect typical antiquities of the stone and iron age for the University Museum.

On the 1st of July Mrs. Nuttall again left Moscow and visited Troitzkoi and Rostow, whence taking the steamer down the Volga she arrived at Nijnii, on the 8th of the month. Here, to signalize the event of the coronation, was held a Pan-Russian Industrial and Art Exhibition. Its Commissary General, His Excellency V. T. Timirazyeff, had been a commissioner at the Philadelphia Centennial. He and his aid, A. V. Dobraniziki, spoke with the utmost pleasure of their stay in Philadelphia, and expressed their greatest interest in our Museum. The ethnological material at the Exposition was not very large, but made up for quantity in quality. The Asiatic department presented a wonderful opportunity. There were three sections, the Bokharan, the Trans-Caspian and the Dungan, and Kirghiz. The specimens purchased, which have been received in Philadelphia, are very remarkable. Among them is a woman's costume from the Dunganese, an interesting tribe of Mussulman Chinese, subject to Russia; the costume of a Teke man with long coat, fur cap, sash and whip, and a set of musical instruments from Tashkend.

The chief importance of Nijnii is ordinarily due to the fair which is held annually from the 5th of August to the 15th of September. The settled population of the town is about 60,000, but it rises then to 250,000 to 300,000. From remote antiquity the Russian merchants were accustomed to meet in summer with those from the East at different places on the Volga. The fair has only been held directly at Nijnii since 1817. The Jahrmarka is a wholesale fair, the extent of which can be estimated by the total of the business transacted, which amounts to about 300,000,000 roubles (\$150,000,000). Cotton, woolen, linen, and silk stuffs constitute about forty per cent. of the whole, with iron, corn, teas, furs, wine, fish, pottery, and manufactured goods coming next in importance. Two other fairs are also held at Nijnii—one for wooden wares is held on the ice, and another for horses in June. The Jahrmarka is held in a suburb connected with the town by a bridge of boats 1,500 yards long, which is entirely removed in winter.

The shops of the fair, more than 3,000 in number, are built of stone in regular rows, are surrounded by a canal, and cover half a square mile. The bridge is a favorable point for observation, swarming with people all day long until 2 o'clock in the morning.

Here are to be seen the Tartar workmen with their marked Mongolian features, high cheek bones, brown skins, and shaved heads covered with a cotton skull cap. Occasionally, too, one sees Persians and Armenians wearing Astrakhan fezzes or voluminous turbans, their long garments floating majestically as they walk. Often, too, Tartar women, closely veiled in Mussulman style glide along discreetly. Mrs. Nuttall describes the ceremonies at the opening. It was a curious spectacle. Service was held. A *Te Deum* was chanted in the central chapel, next to which flag-posts are raised. At a given signal the two flags were hoisted—one for the merchants of the upper, and one for the merchants of the lower town. According to the way their respective flags unfurled and fluttered in the breeze, it is decided whether the fair will be a success or not. After this operation has been observed by the crowd with painful and eager interest, the gilt-robed priest issued from the chapel, and followed by the Governor and Mayor, etc., and carrying the holy image and gilt banners, went in procession to the fair, sprinkling holy water around.

The church parade, consisting of 100 soldiers, also filed past, with their band playing. At that time there were scarcely any buyers, owing to the imperial visit, but the streets with antiquity shops were full of venders. One must penetrate into small low rooms, around which countless old clothes are hanging—cast-off fur cloaks and coats next to brocade Russian costumes. Space would not permit the recital of all the curious things brought here for our Museum. A brocade national outdoor dress, such as was worn by the nobility and merchants' wives until about twenty-five years ago, is among them. It consists of a heavy red silk sarafaw, or petticoat, and a fur-lined and trimmed coat and jacket to match, with a beautiful red velvet cap. With this are embroidered gloves and a silk vest interwoven with gold. The old national costume of Russia has

practically gone out of use. A search through three villages yielded only a single caftan, or sleeveless jacket. The oldest women alone remember what the old national dress was like. All the gold-embroidered caps have long since been carried to the churches to be melted down for the gold on the threads. Besides the dealer has been around and taken all.

It is indeed the highest time to collect in Russia, if at all. In a few years it will be impossible to get anything at any price, for the Russian ethnological museums are awakening to the fact that now or never they must assemble and preserve all relating to national costumes and customs.

The last place of importance in Russia visited by Mrs. Nuttall was Riga. Here she participated in the Archæological Congress, which brought together all the foremost scientists in Russia, made exchanges with a number of the scientific societies of the Baltic provinces and secured a series of costumes and other objects of the Finnish race, the Letts and Esthoniens. To the many objects obtained by gift, purchase, and exchange Mrs. Nuttall added some interesting souvenirs of her visit, which will be displayed when the Russian exhibit is formally installed in the new Museum building.

SPECIAL COLLECTIONS.

Fans.—The formation of a collection of the fans of the world has been undertaken by Mrs. Joseph Drexel, who has contributed thirteen specimens of European fans of great beauty and value :

- 19,441. Spanish fan. Segovia.
- 19,442. Vellum marriage fan. Early Louis XVI.
- 19,443. Mourning fan.
- 19,444. Dutch fan.
- 19,445. Painted fan. Dismissal of Hagar. Louis XVI.
- 19,446. Vernis Martin. France. Early Louis XV.
- 19,847. Painted fan. Louis XVI.
- 19,848. Painted fan. Judgment of Paris. Louis XVI.
- 19,849. Chinese fan, carried at the Meschianza by Elizabeth Gordon.
- 19,850. Chinese enamelled metal fan.

19,851. Chinese ivory fan. Eighteenth century.

19,852. Carved ivory fan, wheat and roses. Nuremberg. Eighteenth century.

19,853. Horn fan.

The Museum possesses a series of Korean fans, and a valuable collection of fans and carved ivory fan handles from the Marquesas Islands.

Games.—The collection of games has been augmented by a gift from Mrs. Joseph Drexel of six packs of German playing cards (19,436 to 19,440 and 19,444), and an interesting pack of old Nuremberg cards: "Reisen in den fuenf Welttheilen" (19,410) presented by Mr. Charles T. Heaton through Joseph G. Rosengarten, Esq.

Mrs. Zelia Nuttall also collected two sets of modern Russian chessmen in Moscow, one consisting of miniature iron figures, representing the campaign of Napoleon. In Nijnii-Novgorod she purchased a set of Khirghiz chessmen at the Pan-Russian Exhibition.

The last publication referring to the collection consisted of a monograph on the game of "Mancala" (Report of the United States National Museum, 1894), by Mr. Culin.

The catalogue of the collection, sent by the Museum to the Atlanta Exhibition through the Smithsonian Institution, will appear in the report of the United States National Museum for 1896. It consists of a monograph on the origin of cards and chess, illustrated with several hundred figures and plates.

Upon the invitation of Dr. Franz Boas, in charge of the Section of Ethnology and Archæology, the Museum exhibited a series of objects at the Fourth Annual Exhibition of the New York Academy of Sciences, held at the American Museum of Natural History on April 5th and 6th. The specimens, displayed under the title of "Divinatory Diagrams," comprised divinatory diagrams, and boards and diagrams used in the "Game of the Goose" from Thibet, Korea, China, Japan, Italy, France, Germany, Holland, Sweden, Denmark, and modern and ancient Mexico. The object of the exhibit, which represented recent collections made by Mr. Culin, was to illustrate the parallels, approaching identity, between the pictured

diagrams, identified as divinatory and calendrical, and the similar diagrams used in the "Game of the Goose."

The Tennessee Centennial Exposition has invited the Museum to contribute to its *Æronautical Exhibit*, for which a special building has been constructed, in which plans, drawings, photographs, and models of kites, flying machines, air-crafts, and publications on the same, as well as actual working apparatus, will be shown. The Museum will, accordingly, send to the Exhibition the Malay kites from Johore, for which a special request has been made, together with specimens of Korean and other Oriental kites.

Musical Instruments.—The collection of musical instruments of Mrs. William Frishmuth, of Philadelphia, to be deposited in the Museum, now numbers over five hundred specimens from all parts of the world. Mrs. Frishmuth is having the entire series photographed, with a view of the publication of an illustrated catalogue.

Mr. Sigmund Beel, of San Francisco, has presented a set of six Chinese instruments (19,413 to 19,418), ordinarily used by a Chinese orchestra. It comprises a three-stringed guitar, a moon-shaped guitar, a two-stringed fiddle, a flute, a clarionet, and a gong.

Numismatics.—Baron Wolff, of Schwanenburg, Riga, Russia, has presented, through Mrs. Zelia Nuttall, the following silver coins of the Grand Masters of the "Livland Order" (a branch of the "Teutonic Order"), which were ploughed up in one of the fields on his estate at Alt-Schwanenburg, near Riga, in 1894: 19,485 and 19,486, Henricus of Galen, from Riga, 1554, "ferding"; from Reval, 1555, "schilling"; 19,487 and 19,488, Gotfried Kettler, from Reval, two coins, "artigs"; 19,489 and 19,490, William, Markgrave of Brandenburg, from Riga, two coins, "artigs"; 19,491, Wolter of Plettenberg, from Riga, 1532, "artig"; 19,492, Herman III of Wesel, from Dorpat, "schilling."

The formation of a numismatic cabinet has been undertaken by the Museum, and an exhibition will be made of its collection in the American Hall during the present college term.

LIBRARY.

The Library of the Museum at present comprises 2,214 pamphlets and unbound volumes, and 214 bound books, the greater part of which has been acquired during the past six months. Among the more important acquisitions are the following :

Antigüedades Mexicanas. Publicadas por la Junta Colombina de Mexico en el cuarto centenario del descubrimiento de America. Mexico. 1892.

Gift of *Señor Don Joaquín Baranda, Minister of Public Instruction.*

Nombres Geograficos de Mexico. Dr. Antonio Peñañiel. Mexico. 1885.

Fac simile Reproduction of the Vatican Codex No. 3,773.
Gift of the *Duc de Loubat.*

Kultur und Industrie Suedamerikanischer Voelker. Max Uhle. Berlin. 1889.

Gift of *Dr. William Pepper.*

On the Development and Distribution of Primitive Locks and Keys. London. 1881.

Excavations at Mount Caburn Camp. Westminster. 1881.

Excavations in Bokerly and Wansdyke, Dorset and Wilts. Vol. III, 1882.

Report on Excavations in the Pen Pits, near Penselwood, Somerset, London. 1881.

Excavations in Cranborn Chase, near Rushmore. 2 vols. 1887, 1888.

King John's House. Tollard Royal, Wilts. 1890.

By Lieut.-Gen. Pitt-Rivers. Gifts of the author through *Henry C. Mercer, Esq.*

Antiquities of Siberia. 3 vols. 1888 to 1894. 4to.

“ “ Southern Russia. 7 vols. 1891 to 1896. 4to.

“ “ Northeastern Russia. 3 vols. 1890 to 1893.
4to.

“ “ Trans-Caucasus. 1894. 4to.

“ “ Scythia. 4 vols. 1866 to 1873. 4to and
Atlas. Folio.

Archæology of Caucasus. 4 vols. 1888 to 1894. 4to.

Byzantine Monuments in Kertch. 1892. 4to.

Excavations in the Country of the Drevlians (Primitive Russia). 1893. 4to.

Tumuli south of Lake Ladoga. 1895. 4to.

Compte-rendus of the Imperial Russian Archæological Commission. 5 vols. 1886 to 1892. 4to.

Transactions of the Imperial Archæological Congress. 10 vols. 1869 to 1896. Folios and 4tos.

Gifts of the *Imperial Russian Archæological Commission*.

Oriental Antiquities. 2 vols. 1889 to 1896. 4to.

Slavonic Antiquities. 1895. 4to.

Transactions of the Imperial Moscow Archæological Society. 16 vols. 1875 to 1896. 4to.

Gifts of the *Society*.

Archæological Map of the Government of Kiew. V. B. Antonovitch. 1895.

Gift of the *Author*.

Collection of Antiquities belonging to Count A. S. Uvaroff. 3 vols. 1887. 4to.

Study of the Meriens. A. S. Uvaroff. 1875. 8vo.

Gift of *Countess Paula Uvaroff*.

In addition to its own books, the Museum enjoys the use of the valuable library of the Numismatic and Antiquarian Society of Philadelphia, deposited in care of Mr. Culin, its Recording Secretary. This collection is extremely rich in works on numismatics, and transactions and reports of foreign scientific societies.

EXCHANGES.

A regular exchange of publications is now made by the Museum with the following societies and institutions:

Bureau of American Ethnology, Washington, D. C.

Field Columbian Museum, Chicago.

Milwaukee Public Museum.

Numismatic and Antiquarian Society of Philadelphia.

Peabody Museum of American Archæology and Ethnology, Cambridge, Mass.

Smithsonian Institution, Washington, D. C.

United States National Museum, Washington, D. C.

Museo Nacional de Costa Rica, San José, Costa Rica.

Deutsche Gesellschaft fuer Natur und Völkerkunde Ost-Asiens, Tokio, Japan.

Royal Geographical Society of Australia, Sidney, N. S. W.

Institut Archéologique Liégeois, Liège, Belgium.

Gesellschaft fuer Lothringische Geschichte und Alterthumskunde, Metz, Germany.

Rijks Ethnographisch Museum, Leiden, Holland.

Real Accademia di Archæologia, Lettere e Belle Arti, Napoli, Italy.

Finnische Alterthums-Gesellschaft, Helsingfors, Finland.

Société Finno-Ougrienne, Helsingfors, Finland.

Société de Géographie de Finlande, Helsingfors, Finland.

Société du Chronique Nestor, Imperial University of Kiew, Kiew, Russia.

Minussinsk Museum, Minussinsk, Siberia.

Moscow Archæological Society, Moscow, Russia.

Museum der Alterthuemer, Odessa, Russia.

Gesellschaft fuer Geschichte und Alterthumskunde der Ostsee-Provinzen Russlands, Riga, Russia.

Wissenschaftliche Commission des Lettischen Vereins, Riga, Russia.

Imperial Archæological Commission, St. Petersburg, Russia.

Imperial Ottoman Museum, Constantinople, Turkey.

An increased list of exchanges with scientific institutions, both in the United States and abroad, is desired, for which purpose copies of the following publications are available :

Annual Report of the Curator, 1890.

Report of the Board of Managers, 1893.

Sommerville Talismans (catalogue), 1889.

Loan Exhibition (catalogue), 1892.

Addresses Delivered at the Opening Ceremonies, 1892.

Old Babylonian Inscriptions, Part I, 1896.

Old Babylonian Inscriptions, Part II, 1896.

On certain Symbols used in the Decoration of some Potsherds from Daphne and Naucratis, 1892.

An Ancient Egyptian Rite, 1893.

The Feather and the Wing in Early Mythology, 1894.

The Exhibit of the Section of Egypt and the Mediterranean, Atlanta Exposition, 1895.

Some Sculptures from Koptos in Philadelphia, 1896.

On the Remains of the Foreigners Discovered in Egypt, 1896.

Chinese Games with Dice, 1889.

Korean Games, 1896.

PHOTOGRAPHS.

The supervision of the photographic work of the Museum has been voluntarily undertaken by Mr. George E. Starr, of Philadelphia, who has made sixty-five 6x8 negatives, chiefly of the new Etruscan collection, since assuming charge. Considerable progress has been made in the formation of a col-

lection of archæological and ethnological photographs, negatives and lantern slides. The principal acquisitions have been :

Sixteen photographs of Letts from Livland. Gift of Mr. Novicky through Mrs. Zelia Nuttall.

Ten photographs (19,682) of scenes and views, characterizing the life of the Kirghiz of the Government of Akmolinsk and Semirechensk, Turkistan, Central Asia. Gift of Konst. Wasil. Nicolayeffsky, Government Omsk, Russia, through Mrs. Zelia Nuttall.

Twenty-six photographs (19,655 to 19,679) representing the manners and customs of the Kirghiz, mosques and schools in Samarkand. Purchased at the Pan-Russian Industrial and Art Exhibition at Nijni-Novgorod by Mrs. Zelia Nuttall.

Four photographs (19,801 to 19,804) of Terraba and Boruca Indians of Costa Rica. Gift of Dr. Thomas M. Calnek, San José, Costa Rica.

Fifty-three lantern slides of types of mankind, made for the Museum from photographs from life to illustrate Prof. E. D. Cope's lecture on "The Physiognomy of Man."

LECTURES.

The following lectures, to which members of the University Archæological Association and their friends have been invited, have been delivered in Horticultural Hall :

1896, December 4th. "Korea, The Chosen Land." Col. Ch. Chaillé-Long.

1897, January 15th. "Japanese Archæology." Prof. Edward S. Morse, of Salem, Mass.

1897, February 15th. "The Physiognomy of Man." Prof. Edward D. Cope.

1897, March 20th. "Ancient Italy in the Light of Recent Excavations." Prof. Arthur L. Frothingham, Jr., of Princeton University.

UNIVERSITY ARCHÆOLOGICAL ASSOCIATION.

President, DR. WILLIAM PEPPER.

Secretary, MRS. CORNELIUS STEVENSON.

Treasurer, JOHN SPARHAWK.

This Association was founded in 1889 to co-operate with the Museum, which has been largely created by its efforts. It elects from its membership the Board of Managers of the Department of Archæology and Palæontology, with the exception of ten, appointed by the Board of Trustees of the University of Pennsylvania.

Its object is to secure funds for exploration, and to promote interest in the development of the Museum. Its members receive copies of this bulletin, and cards of invitation for all lectures given under the auspices of the Department of Archæology and Palæontology.

The annual membership fee is five dollars, payable in January. Its funds are administered with strict reference to the purpose of the subscription.

For admission to membership, and all other information, application should be made to the Secretary, Mrs. Cornelius Stevenson, 237 South Twenty-first Street, Philadelphia.

✓

RECEIVED,
FEB 2 1898
PEABODY MUSEUM.

BULLETIN
OF THE
Free Museum of Science ^{AND} Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

No. 2. PHILADELPHIA, DECEMBER, 1897 VOL. I.

A MODERN KIPU FROM CUTUSUMA, BOLIVIA.

BY DR. MAX UHLE.

At the time I was making preparations for my travels in South America, I came across a passage in the works of the distinguished traveler, J. J. von Tschudi, in which he remarks that the kipu, that famous instrument which held so important a position in the days of the ancient civilizations of Peru, was still to be found in use among the Indians of Northern Bolivia and Southern Peru. It is to be regretted that so expert a traveler did not bring any of these modern kipu back to Europe. So many objects, remains of the civilization of the ancient Indians, have vanished since the time of the travels of Tschudi, that I had reason to fear that the use of the kipu might also have terminated. Fortunately, I found this was not the case. The kipu, indeed, survives in the interior of Peru and Bolivia, and this is not to be wondered at; where the Indians have not been taught reading and writing, an instrument for counting, that had proved so useful that an entire high civilization, that of the Incas, was based upon it, was not to be readily given up.

Being aware of the importance of this instrument as a medium of civilization, I missed no opportunity in Northern

Bolivia of asking the people, Spanish as well as Indian, if they had any knowledge of the use of curious knotted strings for purposes of counting. Not discouraged by many negative replies, I succeeded at last in obtaining two modern representatives of the ancient kipus, the first at Challa, on the Island of Titicaca, which I sent directly to Professor Bastian, at Berlin, who esteemed it so highly that he was kind enough to publish an account of it, together with my notes, almost immediately (*Ethnologisches Notizblatt*, 1895, *Heft* 2, page 80, with plate III), and the second at Cutusuma¹, on the southeastern shore of the Lake of Titicaca, not far from the road leading from Chililaya to Aigachi, about two leagues from the former village and about one league and a half from the latter.

The second of these kipus, which I handed to the Department of Archæology of the University of Pennsylvania, is the one which I intend making the special subject of the following pages, in which I shall at the same time present some further notes on the subject of the modern and ancient kipus. I propose, in this paper, to clear the question of the ancient kipus as far as is possible, principally for the purpose of opening a somewhat broader field for future inquiries.

I obtained my second kipu from a common Indian, during an excursion in April, 1895, together with the friendly corregidor of the village of Aigachi, to the other side of the hills separating the plain of Aigachi from a more eastern plain that stretches from the Lake of Titicaca far toward the south to the so-called "Alto de La Paz." Cutusuma is a small hacienda in that plain, distant only a few minutes from the shores of the lake. The Indian who gave me the kipu had been alcalde (a kind of officer among the Indians) during the year 1894. As alcalde he had been responsible for keeping in order the flocks of the farm, and at the end of the year of his office he was obliged to deliver to another Indian who succeeded him as alcalde, among other things, the command of all the sheep and shepherds of the farm. This was done in accordance with the

¹ Manuel V. Ballivian, *Diccionario Geográfico de la República de Bolivia*, 1890, I p. 35.

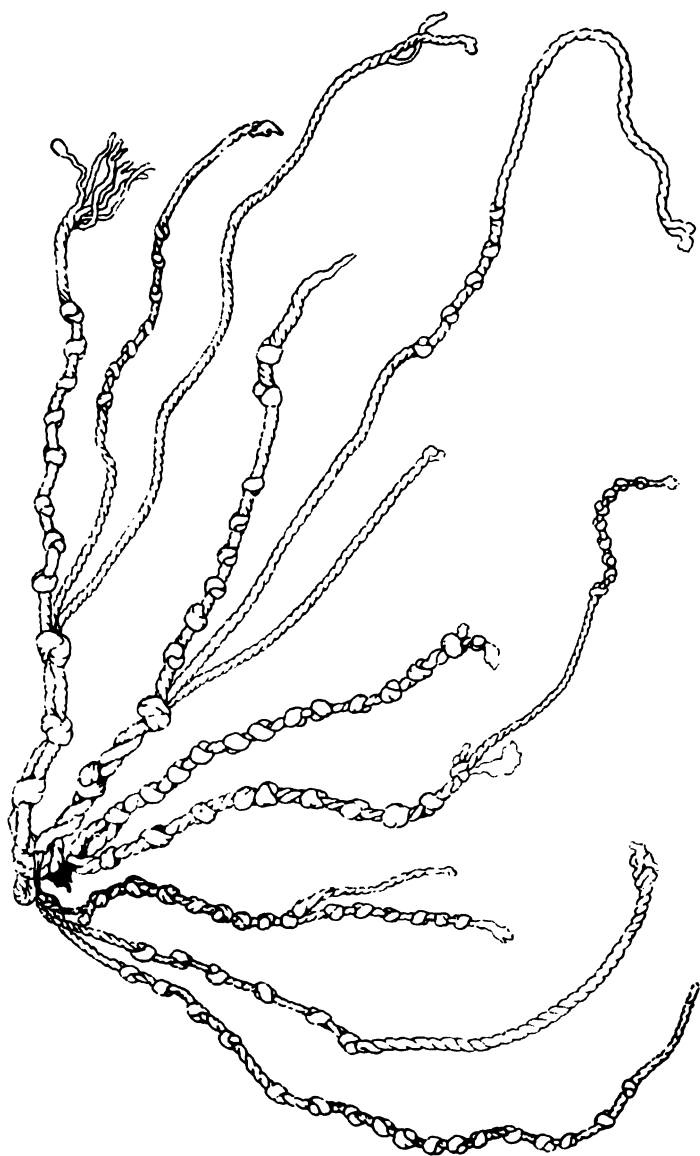


Plate 1. Kipu from Cutusuma, Bolivia. Museum of Science and Art, University of Pennsylvania, 36.892.

numbers indicated by the kipu that he then held, and which he retained when we visited him. It is improbable that I should have succeeded in securing this interesting specimen, had it not been for the intervention of the corregidor, the authority of the village to which Cutusuma belonged. In a similar manner I obtained the first of my kipus at Challa, through the kind assistance of Sr. Machicado, the administrator of the farm. During my travels on the shores of the Lake of Titicaca I was promised several others, which, however, I did not receive. The wife of the sub-prefect of the province of Omasuyu, when I showed her the first I obtained, told me of more specialized forms that served for keeping harvest accounts on farms, and promised to procure me one. But she failed to obtain it. The tenant of the hacienda of Chinchaya, which lies between Achacache and Ancoraimes in Omasuyu, was aware that one of his Indians preserved a kipu. The Indian, on being questioned, did not deny the fact, but, instead of delivering it for the money which we offered, returned later with the news that the rats had eaten it. Of course, this was an absurd excuse, but as the Indian was not willing to give up the kipu, it was impossible to force him. All of which goes to show that a traveler depends much upon the good-will of the Indians, and that many things are not obtained by a white man and a traveler simply because he is a white man and a foreigner. As such he is unable to surmount the instinctive distrust and mental opposition the Indian has for him.

The kipu of Cutusuma, Plate I, is not colored. It consists of white strings of sheep wool. Four divisions of strings are to be distinguished and in each of these, threads of different thicknesses and knots of different sizes are found together. There are strings of two threads, others, also, of four or six threads, and some formed by twisting together two parallel strings of the latter kind. By making knots in the strings of different thicknesses the knots become of different sizes, and so we find knots of three different kinds.

The system of reading or interpreting the kipu, is as follows :

Each division of strings represents a different kind of animals

(the flocks of the farms are always of four kinds, consisting of ordinary female sheep, rams, lambs, and milking sheep).

"The number of female animals is always indicated on the border of the kipu, and that of the males in the centre" (information given by the Indian).

The three kinds of knots express respectively, according to their size, hundreds, tens, and units.

With these facts in mind, we may proceed to read the kipu.

The alcalde of Cutusuma delivered at the close of the year 1894 to his successors :

387 sheep

285 rams

121 + 99 lambs. These are the lambs of the second and third set of the year, the lambs of the first set having been joined as is the custom to the rams of the same year.

86 + 60 + 170 milking sheep (of the three sets of lambs for the year).

My two modern kipsus answer the description of the ancient kipsus as given by Inca Garcilaso.

These and others of which I heard were used, like a large part of the ancient ones, for the purpose of counting the harvest and other agricultural productions¹, and served especially for making annual accounts.²

The distinction of different kinds of knots, expressing by their size, hundreds, tens, and units, and arranged in series so that the knots expressing the highest numbers are found uppermost, accords with what Garcilaso tells us of the ancient kipsus³.

A main string, to which the strings of the knots were at-

¹ Garcilaso de la Vega, *Comentarios Reales*, Pt. I, B. VI., Ch. 8.

² Garcilaso l. c.:—porque estas cuentas eran anales, y no daban razon mas que de un año solo.

³ Garcilaso l. c.: Los nudos se daban por su orden de unidad, decena, centena, millar, decena de millar, y pocas veces ó nunca, pasaban a la centena de millar. . . . Estos numeros contaban por nudos dados en aquellos hilos, cada numero dividido del otro: empero los nudos de cada numero estaban dados todos juntos debajo de una vuelta, a manera de los nudos que se dan en el cordon del bienaventurado Patriarca San Francisco, y podiase hacer bien porque nunca pasaban de nueve como no pasan de nueve las unidades y decenas, etc.

tached, as Garcilaso describes of the ancient kipu, is also a feature of the tripartite modern kipu from Challa, now in the Berlin Museum.

The distinction of the counted objects by the colors of the strings expressive of them, as used in ancient times, is still in use in many places, as on the eastern side of the Lake of Titicaca, where yellow stands for barley and so forth. The memory of it also was still kept alive on the Island of Titicaca, although it had fallen into disuse there on account of lack of colored string among the Indians.

The objects on the uncolored ancient kipu were arranged according to their values,¹ and the same applies to the modern ones.

The most conclusive evidence that the modern kipu are the direct descendants of the ancient ones lies in a significant peculiarity common to both. Garcilaso tells us that there were, in addition, certain strings attached to the main strings, which served no other purpose than to indicate certain exceptional numbers disturbing the final total of the main strings.² On the kipu from Challa (now in the Museum of Berlin) two separate strings attached to the main ones indicate the number of rams consumed in the kitchen of the owner of the hacienda on the one, and the other the number of sheep eaten by the shepherd himself. Both numbers are to be subtracted from the respective totals to which they are subordinate. The modern kipu from Challa thus serves to illustrate the detail related by Garcilaso of the ancient kipu, which otherwise, perhaps, would have been unintelligible.

¹ Garcilaso l. c.: Las cosas que no tenían colores iban puestas por su orden empezando de las de mas calidad, y procediendo hasta las de menos, cada cosa en su genero, como en las mieses y legumbres. Pongamos por comparacion las de España, primero el trigo, luego la cebada, luego el garbanzo, haba, mijo, etc. Y asi tambien cuando daban cuenta de las armas, primero ponian las que tenían por mas nobles, como lanzas, y luego dardos, arcos y flechas, porras y hachas, hondas y las demas armas que tenían, etc.

² L. c.: Algunos destos hilos tenían otros hilitos delgados del mismo color como hiuelas, o excepciones de aquellas reglas generales, como digamos en el hilo de los hombres o mugeres de tal edad, que se entendian ser casados, los hilitos significaban el numero de los viudos, o viudas que de aquella edad habia aquel año. . . .

'The general analogy between my two modern kipu and the ancient specimens of our archæological museums' seems very clear.

If the description of the ancient kipu in the work of Garcilaso, the modern specimens and the ancient kipu of the museums are in perfect harmony, now that we have obtained the clue for understanding the modern ones, should it not be as easy to explain the ancient as the modern ones?

I venture to remark that the analogy between the existing ancient kipu and Garcilaso's description of them bears a still closer similarity than that between the latter and the modern examples. Garcilaso states that kipu of his time had the length of about a foot and a half. This, I believe, is generally the length of the ancient kipu, but the two modern ones obtained by me are much shorter.²

Garcilaso does not speak of different kinds of knots being found on different strings knotted together, but lets us under-

¹Some of the latter have already been reproduced in publications usually more for the sake of curiosity than with any intention of explaining them. J. J. v. Tschudi, *Peru, Reiseakizen*, 1846, II p. 384, represents one of these. The same has been reproduced in Rivero y de Tschudi, *Antigüedades peruanas*, 1851, p. 106. Another, in the Museum of Berlin, was published in the *Archiv für Post und Telegraphie*, Berlin, Erg.-Heft, Sept. 1888, and this last gives us, up to the present time, the best idea of an ancient kipu. A drawing from this picture, evidently made without due appreciation of the significant details, is given by F. Ratzel, *History of Mankind*, translated by Butler, London, 1897, II, 167. The one reproduced in Lord Kingsborough's *Antiquities of Mexico*, 1832, vol. IV, seems to be apochryphal, especially when we consider that the wooden box in which it was long preserved is not, as related, of pre-Spanish, but of later origin. A picture of the same kipu, taken from a work of Perez, was also reproduced by Andree in his article on knotted strings, *Ethnograph. Parallelen*, as well as in the Tenth Annual Report of the Bureau of Ethnology, 1888-89, Pl. XVI. The statement that this kipu was excavated and immediately drawn, is paralleled by so many similar statements on the part of owners of modern and forged objects that we are justified in forming our own conclusions. The method of its preservation, as described by Lord Kingsborough, favors rather than opposes its posthumous origin. The kipu represented by Mon. de Nadaillac in his work, *L'Amérique Préhistorique*, p. 459, cannot be brought into accordance with Garcilaso's description of the ancient kipu, and must, therefore, be likewise considered as doubtful.

²That of Challa has a length of about half a foot, that from Cutusuma is a little longer (about one foot in length).

stand that all the different kinds of knots existed on each single string, as is the case with the existing ancient specimens, but not on the modern ones.¹

And, lastly, he makes mention of the knots being so well arranged on the strings that the knots of the same kind or equal denominations corresponded in their height with each other on the different strings, "as a good accountant brings his figures under each other to make the total at the present day"².

This feature has evidently been lost in the modern kipus. We find on them no intentional parallelism of similar kinds of knots on the different strings. But on looking at the ancient kipu of the Berlin Museum, as reproduced in the *Archiv für Post und Telegraphie*, we recollect Garcilaso's nice description of the proper order of knots on the strings.

On the modern kipus the value of the different kinds of knots is shown by their different sizes, while on the ancient kipus this is indicated by the various heights of their position on the strings. If we look at the kipus as reproduced in the *Archiv für Post und Telegraphie*, we see that the knots crowded together in small series on higher portions of the strings represent a higher decimal system of figures than those at the lower end. The latter are of a different shape. They are formed by a number of spiral twists of the string, and are held together by the ends of the string passing through them in either way. Their general appearance is shown in Fig. II.



Fig. II. Knots in Kipus.

There is no doubt that they represent the smallest numbers

¹ Though Cieza was perhaps acquainted with kipus of a similar ramification of the strings as the modern one from Cutusuma, *Crónica*, II p. 41: y en estos nudos contaban de una hasta diez, y de diez hasta ciento, y de ciento hasta mill y en uno destos ramales está la cuenta del uno, y en otro la del otro.

² Los nudos de cada numero y de cada hilo, iban parejos unos con otros, ni mas ni menos que los pone un buen contador para hacer una suma grande.

in the decimal system of counting. Each special turn of the string apparently signifies a unit, and, although the number of the spiral twists varies greatly on the last knots of every string, the number of turns is, I believe, never more than nine. Mr. Frank H. Cushing observed the general resemblance that they bear to the hand, so frequently used for counting purposes, when closed, and I do not hesitate to refer to this comparison as an interesting idea.

But when we have arrived at a satisfactory understanding of the number as counted on the knots, we have not yet reached a complete comprehension of the kipu. Many of the ancient kipu were of the same kind as the kipu from Cutusuma, which, though readable enough as far as the arithmetical part was concerned, still required some information—perhaps a single word would have sufficed—to indicate the kind of objects to which it belonged. Without this it will be hopeless to arrive at a full understanding of them.

On the other hand, there were many kipu legible to everybody because their colors indicated the kind of objects to which they referred. We are told that in the empire of the Incas a class of learned men understood by help of the colors the interpretation of the kipu, as we understand the contents of books in the present day.¹ Many of the ancient kipu in the museums are colored. It must be admitted that we could understand their contents if we possessed a broader knowledge of the rules relating to the meanings of the colors. The acquisition of this must be our aim in the future.

The discovery of the color values in ancient times is to be obtained in two ways: first, by a careful study of the oldest works treating of the civilization of the Incas, as it is probable that we shall find passages explaining the value of the colors on the kipu, as for instance, Garcilaso tells us: white stands for silver, yellow for gold, and red for warriors. Professor Bastian

¹ Zárate, *Historia del descubrimiento*, 1557, I cap. 5: Assi se hallan las casas publicas llenas de estas cuerdas, las quales con gran facilidad da à entender el que las tiene à cargo, aunque sean de muchas edades, antes de èl.

has made some important citations¹ from the rare work of Calancha and others in this respect, and in the same manner more will eventually be discovered. Mon. de Nadaillac mentions a kipu used during a revolution of the Indians near Valdivia in Chile, in 1792.² This notice, again, assists our knowledge of the significance of the colors, so that we may give the following small table of the value of the colors on the kipus as probably correct :

	Garcillaso	First Citation given by Bastian	Second Citation	Third Citation	Araucanians according to Mon. de Nadaillac
White	Silver . .	Silver . .			Time (coming days)
Black			Time		Time (passed nights)
Yellow	Gold . . .	Gold . . .			
Red	Warriors .	War			Persons invited to war *
Green				Killed in war	
Blue					Persons invited to war and refusing†
Carmine		The Inca .	The Inca .		
Brown		The Curaca			
Gray				Provinces	
Variegated		Government			
Twisted of blue, yellow, and white		Religion .			

* The Pehuenches signify the amount of the blood-money by kipus and declare by the red color of the strings their resolution to take vengeance immediately, if the price is not paid. Pöppig, *Reisen in Chile* etc. 1835, I, 386.

† There are four threads which are blue on the modern kipu from Challa, two of which, perhaps by chance, are also those that indicate the exception from the main count.

¹ *Die Culturländer des Alten America*, 1889, III, p. 74:—Aora pues los que viesen este cordon de la mitad par abajo con hilos de tantos colores, nudos y nuditos, y la otra mitad antecedente con solo hilos pagicos y millares de nudos sin colores, dirian: Esta gente que avia antes deste Rey Mancocapac no tenia Rey, pues no ay hilo carmesi, ni tenia señor, ni cabeça que los governase, pues no ay hilo morado, ni tenian policia, pues no hay torçales de diferentes colores, ni tenian guerra, pues no ay hilo colorado, ni se les dava del oro y plata, pues no hay hilo blanco, ni amarillo, ni tenian as (?) culto, adoracion, ni sacrificios, pues no hay torçal de azul, amarillo y blanco, barbaros eran antes que uviese Reyes.—Pondria el Quipucamayoc en esta forma los hilos y los nudos en un

The second way in which we may hope to increase our knowledge of the values formerly set on the colors is by a closer study of the kipu now in use among the Indians.

We may suppose that they are in use throughout a large area in Northern Bolivia and Southern Perú (compare J. J. von Tschudi), Northern Perú and also perhaps in Ecuador.

I was informed by persons acquainted with the interior of Northern Perú, that in the elevated valleys of the mountains the Indian herdsmen make up their accounts by kipu very similar to those of ancient times. In Ecuador the use of kipu was in vogue in many parts of the mountains in the seventeenth century,¹ and it was also observed by the traveler Stevenson at Riobamba in 1823.² It is my opinion, that proof that it has since become obsolete is necessary. The use of the colors to indicate the kind of objects to which the kipu belong, survives in many parts of this large area, especially in Northern Bolivia and Northern Perú, as I myself verified. Though it is improbable that by the study of the modern kipu of these regions we shall be able to construct the whole system of the values

cordon negro, que significava el tiempo, muchos hilos pagicos, y millares de nuditos sin color diferente, y en medio del un gran nudo, y atravesado un hilo de color carmesi finisimo, que este significava el Rey.—Para dezir que sujetó diez provincias, saldria deste nudo otro hilo pardo con diez hilos y en cada uno atado un hilo verde con los millares de Indios que murieron de los contrarios, los principes (?) los de sesenta años arriba.

¹ De Nadaillac, l. c. p. 459: Une grande révolte contre les Espagnols fut organisée en 1792. Elle avait été préparée, ainsi qu'on l'apprit plus tard, par des messagers portant un morceau de bois dans lequel étaient renfermés des fils, dont les extrémités formaient des franges rouges, noires, bleues ou blanches. Le fil noir portait quatre noeuds qui signifiaient que le messager était parti de Valdura, la résidence du chef de la conspiration, quatre jours après la pleine lune. Le fil blanc portait dix noeuds, ce qui voulait dire que la révolte éclaterait dix jours après l'arrivée de ce messager. La personne à qui le quipo était remis devait à son tour faire un noeud au fil rouge, s'il acceptait de se joindre aux conjurés, aux fils rouges et bleus, si au contraire il s'y refusait.

Instead of Valdura should be read Valdivia (Chile), because, according to the annals of the Virreys, there was no other rebellion in the year 1792 in Perú, except a rebellion of Araucanians in Valdivia.

¹ *Docum. inéditos de Indias*, IX, 378, 469, 471, 495.

² W. B. Stevenson, *Twenty Years' Residence in South America*, 1829, II, 269.

assigned to the colors of the kipus by the ancient Indians—as they had to distinguish a greater variety of objects in their highly-developed civilization¹ than the poor Indians of to-day—no one can safely say that we shall not in time greatly increase our knowledge of the ancient values of the colors by a closer study of the existing kipus.

I do not deny that the explanation of the ancient kipus is one of the most difficult questions in Peruvian archæology and it is uncertain that we are likely to advance rapidly in this direction, but the matter is so important that we are not justified in neglecting the last opportunities of saving all possible knowledge of the ancient kipus, that will have disappeared when the light shed by modern schools shall have in time extinguished the simpler though effective means of ancient civilization.

It would serve to advance the question if museums that possess ancient kipus would publish them. We would then clearly see what details remain to be explained, and further inquiries could be proceeded with accordingly.



THE KABAL, OR POTTER'S WHEEL OF YUCATAN.

BY HENRY C. MERCER.

In studying the pottery of ancient Yucatan, we may infer that the processes of manufacture still in existence among the Maya Indians and half-breeds of the Peninsula have been to a great extent inherited from their ancestors in pre-Columbian times. As opposed to a general impression among archæolo-

¹ Acosta, *Historia general y moral de las Indias*, 1590, VI cap. 8: Porque para diversos generos como de guerra, de gobierno, de tributos, de ceremonias, de tierras, habia diversos quipos o ramales. Y en cada manajo destos tantos nudos, y nudicos, y hilillos atados: unos colorados: otros verdes: otros azules: otros blancos: y finalmente tantas diferencias que asi como nosotros de veinte y cuatro letras guisandolas en diferentes maneras sacamos tanta infinidad de vocablos, asi estos de sus nudos, y colores sacaban innumerables significaciones de cosas.

gists that no true potter's wheel existed in America at the time of the discovery, we observed, while conducting the Corwith Expedition for the University of Pennsylvania, in Yucatan, in 1895, a true, though simple potter's wheel, in operation among native potters at Merida. As described in the report of the expedition (*The Hill Caves of Yucatan*, Lippincott, Philadelphia, 1896, p. 163), the potter's wheel in this instance is of the simplest and most primitive character. It, however, presents the principle of revolving clay molded against the stationary fingers of the worker, as completely as the most finished wheel in existence. At the same time, its peculiar mechanism and mode of operation distinguish it from any similar clay-moulding wheel thus far known to the writer, from any part of the Old World, in ancient or modern times.

At Merida the woman potter sat upon a very low stool, called in Maya, *Kanche*. Before her was placed a soaped board, upon the surface of which she caused to revolve with her bare feet, the *Kabal*, or potter's wheel, a cylindrical section of a billet of wood perfectly round, about three and one-half inches high, and about four inches in diameter. On the flat top of this stuck a ball of clay, which, as it turned, took shape against her down-pressing fingers, as in the case of the formation of earthenware by all modern civilized potters. A wooden splint sharpened to a knife-edge (*Cuchilla cheh*), a small convex section of the rind of the calabash (*Box*), and a piece of soaked leather (*Keuel*) did the shaping. There were other interesting features of the process: the polishing with the pebble (*Yulu*), the painting, either with native red paint clay (*Kan cab*) or an imported powder, the imported glaze, the preparation of the raw material, the soap, the burning, etc. But for archæologists, the chief feature of interest is the *Kabal* itself. Did or did not the singular invention exist in pre-Columbian America?

If we must derive it from the Spaniards we might expect to hear something of it in old Spain, or among the Moors, which we have thus far failed to do. Some of the minor objects used in the process, evidently the result of Spanish contact, have Spanish names, which causes us to wonder why so valuable a device as the wheel, if similiarily presented to the Indians by

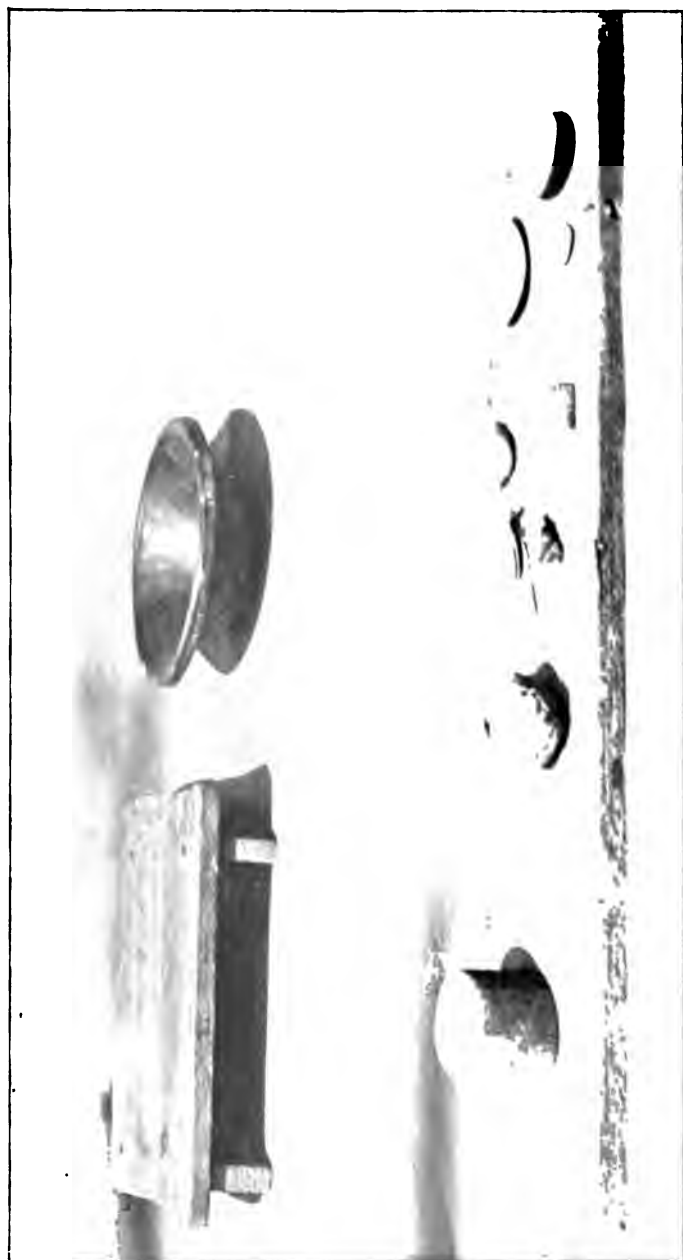


Plate 2.—Appliances of Native Maya Potter, collected by the Corwith expedition at Merida, Yucatan, 1905. Museum of Science and Art, University of Pennsylvania. 13,975-86. 1, *Kabul*, potter's wheel. 2, *Kid*, ball of alloyed clay. 3, *K'wul*, leather smoother. 4, *Johem*, soap. 5, *Chuhlla ch'la*, splint knife. 6, *Yutu*, pebble polisher. 7, *Bax*, calabash rounding tools. 8, *K'wulla*, potter's stool. 9, *L'la d'la*, water dish. 10, *L'mini*, work table on which the *kabul* revolves.

1 2 3 4 5 6 7

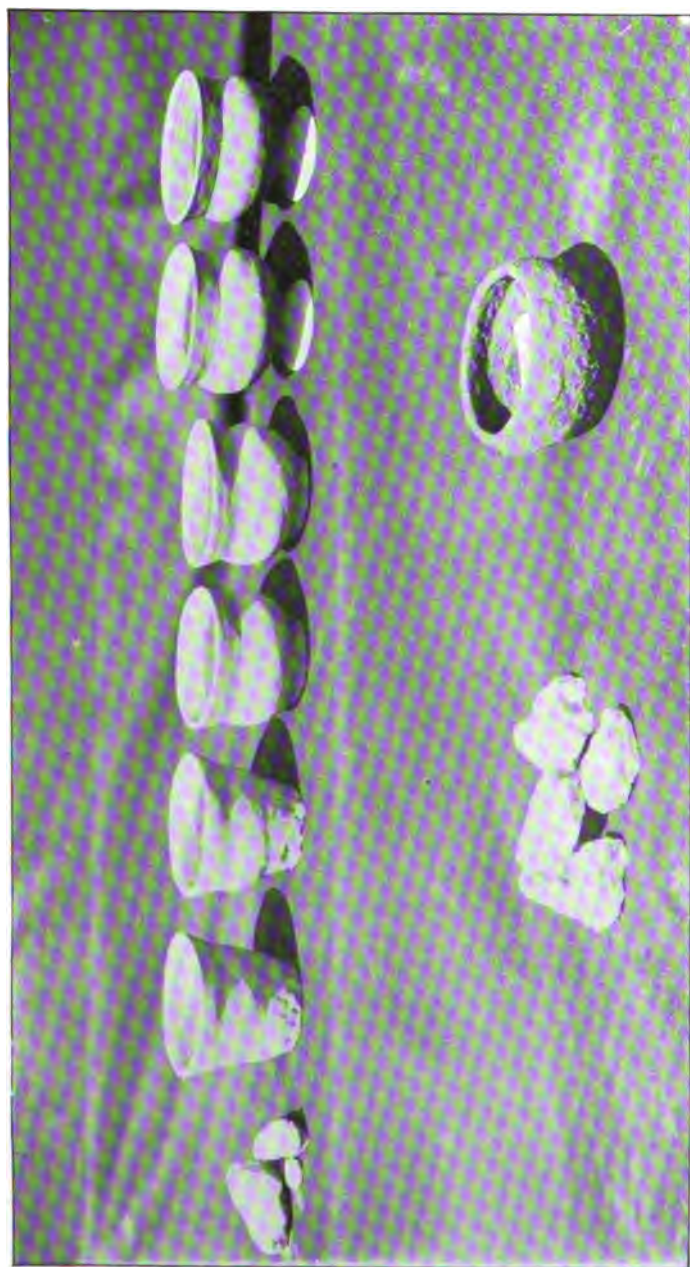


Plate 3.—Manufactures of Native Maya Potter, collected by the Corwith expedition at Merida, Yucatan, 1935. Museum of Science and Art, University of Pennsylvania. 13,987-97. 1, Lumps of *saccul*, native clay. 2-7, Unbaked clay forms freshly turned on the *kabal*, illustrating process of making bowl, No. 7, which is air dried and pebble polished. 8, Lumps of ground limestone for mixing as an alloy with the native clay. 9, Bowl containing *lim cob* or red clay paint for coloring the bowl's before they were burnt.

their Spanish conquerors, escaped a Spanish name. The word *Kabal*, however, is Maya, though strange to say it does not occur in the earliest dictionary of the language published at the monastery at Motul, in 1576. Because it appears first in the later dictionary of the Convent of San Francisco at Merida of about 1690, Dr. Brinton proposes to date the word and the wheel after Spanish conquest. But the absence of the word in the older dictionary fails to weigh conclusively against the antiquity of the device. In several letters received from Yucatan after this question had been raised, I have been assured of the opinion of the late Bishop, of Captain Theobert Maler of Ticul, and lastly of Don Juan F. Molina Solis, author of the *Historia Del Descubrimiento e Conquista de Yucatan* (Merida, 1896), to the effect that the Kabal is a device indigenous to ancient Yucatan. The latter writes from Merida on the 26th of last month, as follows:

"I have received your kind letter of the 28th of June, and the article on the 'Kabal' that you published in the number of June 11th of the review *Science*. I have read it with great interest, and am completely on your side in the discussion, because I think that the 'Kabal' was not introduced into the country from Europe, but that it was a primitive invention of the Mayas. This is the universal opinion in this country. No one here thinks that this utensil was brought over by the Spaniards as an improvement in the potter's art. The Spaniards and their descendants never were occupied in manufacturing pottery. The art always has been in the hands of the Mayan Indians until the present time. The fact that the word 'Kabal' is not in the primitive dictionaries is no reason against our opinion, because they are deficient and lack many words.

"Yours truly,

"JUAN F. MOLINA SOLIS."

For these reasons I objected in *Science* (June 11th, 1897) to Brinton's statement therein (May 21st, 1897), that "the device of the potter's wheel was anciently unknown in either North or South America," and his failure to mention the Kabal, together with the other potter's appurtenances (herewith shown), as illus-

trating its use, in the possession of the Museum of Science and Art of the University of Pennsylvania for the past two years. The evidence thus far is not conclusive that the peculiar device will ever be discovered in the Old World, neither does it fully demonstrate the existence of the Kabal in pre-Columbian America, but it presents archæologists with a fact that cannot be overlooked.



NOTE ON THE CLASSICAL MURMEX.

In the first number of the *Bulletin* I had an article on "The so-called Bow-puller Identified as the Greek *μυρμηξ*."

The identification which I there announced of the curious bronze object referred to in most catalogues as a "bow-puller" or "bow-stretcher," with the *murmex*, fastened by pugilists to the *cæstus* so as to render the blow more formidable, has received general acceptance; but some objections have been urged against it by high authorities, which I take this opportunity to consider.

Professor E. S. Morse, whose article first called attention to this implement, advances in a letter two objections to my identification; first, that so many of the specimens have blunt or short points; and secondly, that the extremities of the base of nearly all of them bend slightly upward, so as to present a faintly concave surface beneath.

To these I would reply that some of them were intended to be much more lethal than others, and therefore in such the points were made long and sharp, while a less destructive variety had merely a blunt projection instead of a sharp point; and as to the slightly concave outline of the base, an experiment promptly demonstrates that this is a great advantage in strapping them on a somewhat yielding surface, such as the leathern *cæstus*, as the leverage presented by the elevated ends of the base allows the body of the instrument to be pressed more firmly downward.

Another and obvious objection was urged by Sir John Evans in a letter to me on the subject. His words are: "If these objects had been really *μυρμηκες*, I think that we should have

found them represented on ancient statues," no instance of which could he remember.

This weakness of my case had always been present to me, and therefore, when in Paris in September, I went carefully through the museums of the Louvre, to see if I could discover any examples among the ancient marbles. My labor was rewarded in the most satisfactory manner by finding an admirable representation of the wearing of the *murmex*. It is a full-length figure in marble, No. 68, in the Salle des Caryatides, and bears the legend, "Athlète Vainqueur au Pugilat." He is fresh from his victory, naked, each hand covered with a *cæstus*, and upon each a *murmex*, separate from the *cæstus*, and as perfectly defined as the implement could be in the stone. One has three sharp points almost equal in length, the other has one prominent central point, while those on either side are blunt. The statue is labelled of ancient Greek work found at Rome. The arms are faithful copies of those in Rome.

This discovery removes all doubt of the correctness of my identification.

D. G. BRINTON.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

ALASKA.

Mr. Edward L. Griffith, of San Francisco, has presented, through Mr. J. A. McIlhenny, the following objects from Alaska:

Occipital portions of skull with attached horn cores of

Ovibos moschatus, Zimm. ♂ (13,751).

Bison antiquus, Leidy ♂ (13,752).

Bison antiquus, Leidy ♂ (13,753).

Bison ——— Sp. Nov. ♂ (13,754).

Section of tusk of *Elephas primigenius*, cut by natives (13,755), together with molar teeth (2), pelvic arches (2), femur, right ulna, tibia, and fibula (13,756-61) of the same species.

All of the above are from the tundra back of Point Barrow, Alaska.

The fossil bison skulls have been kindly identified by Mr. Samuel N. Rhoads, who will publish an illustrated account of them in the Proceedings of the Academy of Natural Sciences of Philadelphia for December, 1897.

UNITED STATES.

Alabama.—Five fossil shark's teeth (13,555) from Montgomery County, and a finely wrought polishing muller¹ (13,662), of quartz from vein, from Tuscaloosa County, have been presented by Mrs. W. H. Miller.

Florida.—The "Preliminary Report on the Exploration of ancient Key-dweller remains on the Gulf Coast of Florida," by Mr. Cushing, separately printed from the Proceedings of the

¹ Schoolcraft, Vol. 4, p. 163.

American Philosophical Society (Vol. XXXV, No. 153) pp. 120, 11 plates, is ready for distribution and can be obtained by application to the Museum.

Maryland.—A large grooved stone axe (13,620) and six knives (13,535) of jasper and quartz, have been presented by Mrs. W. H. Miller.

Massachusetts.—Mrs. W. H. Miller has presented the following objects: A single broad hollow-bitted steatite smoothing adze with sharply grooved butt, for hafting transversely, inscribed "Found by W. Spooner, 1826, in the town brook, Plymouth, From Ammie Brown, Salem, Mass.," two gouges (13,658-59), six chipped blades (13,661) "presented by Ammie Brown to Jacob G. Morris," and a grooved adze (13,668) from West Bridgewater.

Mississippi.—A paint cup (13,624); two minute celts (13,627-28); two grooved sinkers (13,629-30); nine flint knives (13,632-40); flint drill (13,641); sandstone blade (13,642), and an amulet concretion (13,631) of jasper, exhibiting artificial extension of spiral and curved lines, from Natchez, have been presented by Mrs. W. H. Miller. No. 13,624 is designated as from a mound near Natchez, which is also the probable source of the other specimens. Nos. 13,624 and 13,627 are labelled "from W. S. Vaux, Esq."

New Jersey.—An argilite adze-celt, showing hafting mark over outer face and rudimentary grooves at sides, "ploughed up near Trenton, 1837" (Dr. S. G. Morton); two large leaf-shaped jasper blades (13,520, 13,613), one labelled from W. S. Vaux; eight blades from Belvedere (Jacob G. Morris), and five blades (presented by Miss Lloyd to J. G. Morris) have been given by Mrs. W. H. Miller.

New Mexico.—Mr. F. Webb Hodge, of Washington, D. C., has presented a kicked stick (19,971) for the Zuni racing game, used in foot race from Ojo Caliente summer village to Zuni (about fifteen miles), September 11th, 1888; forty plume or prayer sticks (19,972-20,009), and six sacrificial sticks (20,010-15) from various Zuni shrines.

New York.—A narrow white flint knife (13,644), 5½ inches in length, from near Lake George; a flint reaming knife

(13,650), 5½ inches in length, from West Chester, and a war axe blade (13,619), Plate 4, Fig. 2, for side hafting, after manner of corresponding South American and Antillean battle-axes, have been presented by Mrs. W. H. Miller. The last specimen is labelled "From J. Allan, Esq., New York, Nov., 1853." Its provenant is somewhat doubtful.

North Carolina.—A very perfect hematite paint stone (13,245), found on uprooting a tree on Green River Plantation, Polk Co., has been presented by Mr. Tench C. Coxe, of Green River Plantation, through Dr. B. B. Reath, of Philadelphia; and a large, double-grooved truncate butted axe (13,621), from the bank of the Swananoa River, Buncome Co. (Dr. Hardy), from the collection of Dr. Samuel G. Morton, has been presented by Mrs. W. H. Miller.

Ohio.—Two mullers (13,646, 13,655) and a stone ball (13,647), all marked W. S. Vaux, have been presented by Mrs. W. H. Miller.

Pennsylvania.—An unperforated banner stone (13,517) from Montrose, Allegheny County; a polished grooved axe (13,617) (William H. Miller) a rude quartz knife (13,546), jasper blade (13,653), rude grooved axe (13,654), Clearfield Farm, and six chipped blades (13,656) from Delaware County, and a polished grooved axe, "C. W. Pennock, Brandwine Farm, 1814," the latter ground at the top in a double curve, have been presented by Mrs. W. H. Miller.

Oregon.—Twelve arrow-heads, four (13,547) from the Columbia River, Umatilla; two (13,549) from The Dalles, and three fore-shafts (13,550) with flint and obsidian points, have been presented by Mrs. W. H. Miller.

Rhode Island.—A grooved beater for flattening bark (13,623) from Narragansett, has been presented by Mrs. W. H. Miller.

South Carolina.—Mrs. W. H. Miller has presented the following objects: Five large grooved axes (13,587-91), a double-bitted battle-axe (13,610), grooved at side, and a ceremonial battle-axe (13,600), Plate 4, Fig. 2, showing marks of hafting side-wise in narrow wooden handle, with the flanges of the blade designed to fit close to hafting, as indicated by the shifting lower

Fig. 1.

Fig. 2.



plate 4.—Fig. 1. War-axe for side-hafting (13,600). South Carolina. Fig. 2. Axe for side-hafting (13,619). New York. $\frac{1}{4}$. Gift of Mrs. W. H. Miller.

Fig. 1.

Fig. 2.

Fig. 3.



Plate 6.—Fig. 1. Chunkee Stone (13,502). Fig. 2. Chunkee Stone (13,556). Fig. 3. Chunkee Stone (13,603). South Carolina. $\frac{1}{2}$. Formerly in the collection of Dr. Samuel G. Morton. Gift of Mrs. W. H. Miller.

of the point of perforation.¹ Figured by Schoolcraft (Vol. II, Plate 44) as from Camden.

Also, two chipped blades (13,648-49), one from Darlington County, and four unfinished ceremonial axes, commonly called banner stones, (13,597-99, Camden; 13,652, Dr. Barrott); two polished celts (13,594-95), Dr. Gibbs; a triangular pyramidal-shaped polishing stone (13,612), and a fetich stone (13,611), consisting of an iron-stone concretion with a naturally head-shaped top wrought with the representation of mouth, and other lines artificially sharpened to heighten resemblance to a sitting animal figure. It is labelled "from the foot of an Indian mound, S. C."

Also seven polishing mullers (13,606-07, 13,614, 13,664-67); a paint muller (13,608); a quartzite paint-stone (13,605), Camden, and six quartzite stones for the game of chunkee. One of the latter (13,603), Plate 5, Fig. 3, $5\frac{1}{2}$ inches in diameter, has been worn or broken through the middle, and is inscribed: "Mound at Bellmont, near Camden, S. Carolina." Another (13,602), Plate 5, Fig. 1, $5\frac{1}{8}$ inches in diameter, is exquisitely wrought of white translucent quartzite. Another (13,556), Plate 5, Fig. 2, 4 inches in diameter, is highly polished, with perforation, and arrow-like marks on transverse diameter. Another (13,669) is smaller, and also perforated.

Also a very large soapstone cooking pot (13,670), with rudimentary handles, 19 inches in greatest diameter. The majority of these objects bear the label "Wm. Blanding to Dr. S. G. Morton, 1845." They are in part figured by Schoolcraft in Vol. IV, Plate 16, and are described in the same volume, page 155, by the Rev. George Howe, in *An Essay on the Antiquities of Congaree Indians of South Carolina*.

Tennessee.—A jasper arrow-head (13,643) from Montgomery County has been presented by Mrs. W. H. Miller.

Virginia.—A very delicately chipped flint spear-head (13,516) $4\frac{1}{2}$ inches in length, and a sharpened celt (13,615) $4\frac{1}{2}$ inches in length from Prince Edward County (Dr. Langhorn);

¹ The identification of this, and the other stone objects in the Miller collection, was made by Mr. Cushing.

a chipped blade (13,622) from Bedford County; and four flat discoidal shell beads (13,518), perforated through longest diameter, with unmarked faces, one inch to half-inch in diameter, from Gloucester County (Dr. Jones), have been presented by Mrs. W. H. Miller.

MEXICO.

Mrs. J. A. Petrie has presented fourteen flaked obsidian knives (13,765) from Tenochitlan, and Wells M. Sawyer, Esq., of Washington, an impression of the seal of the Inquisition in Mexico (20,131) from an original seal in his possession.

CENTRAL AMERICA.

Darien.—Mr. Henry Gregory Granger has given a comb (20,129) made and used by the Cuna Indians of the Isthmus of Darien.

PERU.

The collections from Pachacamac are being arranged and catalogued preparatory to publication by Dr. Uhle.

POLYNESIA.

Samoa.—Mr. James Kingsbury presented a model of a canoe (19,932), and Miss S. W. Bonsall, a piece of tappa cloth (20,081) collected by Captain Joshua Bishop, U. S. N.

MELANESIA.

Fiji.—Mr. James Kingsbury presented a war club (19,930); Dr. Max Uhle, a carved wooden spear (20,058).

New Caledonia.—Two steatite sling stones (19,885) and a jade celt (19,884) have been presented by Mrs. William H. Miller.

Solomon Islands.—Mr. James Kingsbury presented a basketry shield (19,931), four spears (19,915–18), three bows (19,919–21), sixty-one arrows (19,922), four carved paddles (19,924–27), bow drill (19,914), water bottle (19,923), carved wooden idol (19,929), and a polished celt (19,928); Dr. William Pepper six spears (20,025–30), one bow (20,024), and fifteen arrows (20,021–23).

AUSTRALIA.

Mr. James Kingsbury has presented two boomerangs (19,933-34), a polished celt (19,955), and a carved wooden shield (19,935).

ASIA.

THE FAR EAST.

China.—Dr. Edward Bedloe, late United States Consul at Amoy, has presented sixteen ceremonial pikes (19,956-64), such as are placed in front of Yamun or official residences; and Mr. Robinson Tyndale, a Chinese bow and six arrows (19,889), such as were used down to the period of the late war. Mr. R. C. H. Brock has presented a book of Chinese pith-paper pictures (19,896) of Peruvian costumes.

Japan.—Dr. D. B. McCartee has presented a rubbing (20,059) of a Sanskrit inscription in the Kwannon Temple grounds at Asakusa, Tokio, concerning which, in a private letter to Mr. Benjamin Smith Lyman, he writes as follows:

“Two weeks since, having occasion to visit Asakusa, it occurred to me that a rubbing from a large stone in the Kwannon Temple grounds might be acceptable, as a curiosity at least, to the philological and archæological societies connected with the University of Pennsylvania. I went into the temple and asked the priests to have a couple of rubbings made for me from a large slab of stone which is in the temple grounds on the west side, and which has on its face an inscription in the Nepalese style of Sanskrit of the ‘Dharani of the honored diadem on Buddha’s cranium.’ This is the title in Chinese characters on the upper part of the inscription. It was the Chinese title which attracted my attention some sixteen or seventeen years ago, and interested me because it was the same title as is inscribed upon an inscription in seven different styles of writing on one of the arches of the gateway at the Kū-yung kwau (pass) of the great wall north of Peking. The late Mr. Alexander Wylie wrote an article on that inscription, which I sent to the American Oriental Society, and when I saw the

stone at the Kwannon Temple I got a rubbing, which I also sent to the American Oriental Society. Happening to mention it to Sir Ernest Satow, he had a rubbing made, and refers to the inscription in his (and Hawes') hand-book for Central and Northern Japan, where, he says, that the Asakusa inscription is an 'imperfect copy.' As to this I cannot say, but I believe it is true that 'all the Sanskrit originals which have reached Japan appear to have been written in this character,' so far as my experience goes. The shapes of the characters differ so from the 'orthodox' Sanskrit that the translator of the *O dai ichi ran*, or 'Annales des Empereurs du Japon,' was puzzled by them."

Satow's reference to the Asakusa inscription in the *Hand-book for Central and Northern Japan* (1881, p. 34), is as follows: "A large stone with an inscription on its face in Sanskrit, which is an imperfect copy of the *But-chô son-shô Darani*, or 'Dhârani of the honored diadem on Buddha's cranium.' The character used is the old Nepalese alphabet, in which all the Sanskrit originals which have reached Japan appear to be written."

Referring to Mr. Satow's translation of the title, Mr. Lyman writes: "The proper translation of the title, *But-chô son-shô Darani*, appears to be, according to some Japanese friends of mine, 'Buddha-supreme honorably-exalted Dhârani'; Buddha being used here, as often happens, in the sense of 'all-wise.'"

Mr. Joseph U. Crawford has deposited the Order of the Rising Sun (20,077) and three gold ôbans (20,078-80) presented to him by the Government of Japan in recognition of his services in introducing the American railway system into that empire.

Mr. Edward Starr has presented a lacquered lion mask (19,891) with movable jaws, anciently used in ceremonial dances.

Korea.—Dr. E. B. Landis, of Chemulpo, has presented a *ho-hpai*, or "name tablet" (20,032), an original of the kind figured in the last BULLETIN. He has also sent two of the identification tablets, *yo-hpai*, of which he gives the following account:

"One type (20,099) is square and the other (20,098) round. They are used by the servants of the various Government Boards to prove their identity in drawing their monthly allow-

Fig. 1.



Fig. 2.



Plate 6. Yo-hpai. Identification Tablets (20,099, 20,098). Korea. Actual size. Collected by Dr. E. B. Landis.

ance of grain. This class of people, it will be remembered, belong to inferior grades of society, and do not possess *ho-hpai*, of which these tablets may be regarded as a form.

There is, first, the square one, Plate 6, Fig. 1. The inscription at the top reads, "Camp of the Royal Guards," and signifies that the holder belongs to that department of the Government service. To the right (reading from top to bottom) is the name of the position occupied by the holder, in this case a bugler. Then follows his name, his age, his height, and a description of his face (in this case showing that his face is full, beardless, and without moles or birth-marks. On the opposite side is, on the right, his place of residence, and, on the left, the date of issue.

Secondly, the round type, Plate 6, Fig. 2.

The bearer of this one is supposed to be attached to the Board of War. In the same way, beginning at the right and reading from top to bottom, we find that he is a standard-bearer, with his name, his age (24 years), that he is attached to the garrison of the Capital, and that he lives in the Western District. That his height is four feet (Korean measurement), his face full and beardless, and without moles or birth-marks. On the opposite side is the name of one of his relatives, who acts as security for him, and to the left is the date of issue. The originals have the seal burned in the back."

CEYLON.

Mrs. Cornelius Stevenson has presented a metal stylus and specimens of palm-leaf writing (20,096-97).

INDIA.

Dr. Max Uhle has presented a Maharatta manuscript (20,061), from the collection of and with the autograph of Lady William Bentick.

PERSIA.

Mrs. Cornelius Stevenson has presented a lacquered pen case (20,095), containing a pewter ink well and reed pen.

AFRICA.

Cairo.—Mr. Caleb Milne has presented an embroidered leather sheath (19,890).

Mozambique.—A knife in carved wood scabbard (20,043) and an assagai (20,039) have been obtained by purchase through Mr. F. Kulka, Cape Town.

Zanzibar.—A carved ebony comb (20,044) has been purchased through Mr. F. Kulka.

Zululand.—A woman's beaded belt and apron (20,041), worn by wife, and a beaded necklace (20,042), worn by daughter of Languana, Zulu chief, collected by Mr. F. Kulka, have been acquired by purchase.

EUROPE.

France.—A polished celt (13,558) and two polished celts (13,560), found in the Seine at Paris, has been presented by Mrs. W. H. Miller.

Germany.—A polished celt (13,561) from Mayence has been presented by Mrs. W. H. Miller.

Great Britain.—Mr. Horace J. Smith has presented a flint-lock spring gun (19,895) purchased in a shop at Stratford on Avon; a "man trap" (19,893), and a painted sign: "NOTICE BEWARE OF SPRING GUNS AND MAN TRAPS" (19,894). Mrs. W. H. Miller has presented four polished celts (13,559 a, b, c, d) from Ireland, four flint blades (13,545) from Philiphaugh, Scotland, and an arrow-head (13,551) from Dunlace Castle.

Hungary.—Miss Livingston has presented a Croatian costume (19,887).

Scandinavia.—Fifteen chisels and celts (13,525, 13,562-74); four semi-lunar knives (13,529-30, 13,582-83), the two latter from Sweden; four flaked knives (13,526-27, 13,575), ten daggers and knives (13,328-31, 76-82, 85), and a perforated stone axe (13,586), have been presented by Mrs. W. H. Miller.

Tyrol.—Dr. Horatio C. Wood presented a leather riding belt (20,082) ornamented in quill work, with the name "Faria Kramblighler," which he collected in the mountains of Central Tyrol.

SPECIAL COLLECTIONS.

American History.—The numerous gifts of objects of historic interest, many of which illustrate obsolete or fast-disappearing customs, has led to an effort to form a collection illustrative of life in the American colonial epoch, with special reference to the State of Pennsylvania.

Fans.—Mrs. Lucy Wharton Drexel has added the following fans to her collection in the Museum :

- 20,033. French fan ; silvered pearl sticks, 19th century.
- 20,034. French fan ; gilded pearl sticks, 19th century.
- 20,035. French fan ; gilded pearl sticks, 19th century.
- 20,036. Painted fan. Swan skin ; Louis XV.
- 20,092. Painted fan. Swan skin, with carved and painted ivory sticks. Louis XV.
- 20,093. Spanish fan ; bull fight.
- 20,107. Spanish fan.
- 20,108. Chinese ivory fan, carved with longevity symbols and horary animals. 18th century.

20,109. English fan ; ivory sticks with white silk tissue and silver spangles, and English stipple medallion inserted.

The following is written on the cardboard case: "1894. This fan was given by her Father to Miss Morris, of N. Y., a sister of Mrs. Jno. Dagworthy, my great-great-grandmother, for a party on her 16th birthday, about the year 1719.

"W. KEY HOWARD, JR."

Dr. William Pepper has deposited in the Drexel collection of fans a Brazilian feather fan (20,094) received from Captain Cordeira da Graça, E. C.

Fire-making and Lighting.—This, the last of the special collections undertaken in the Museum, has received a number of interesting accessions. Mrs. Charles C. Harrison presented two rush-light holders (20,065, 20,066), Figs. 12, 13, collected by her during the past summer at Ysppyty, in North Wales. Among other objects are sticks (18,266) used for dipping candles from Chalkley Hall, Philadelphia, presented by Edward Wetherill, Esq., and a tinder box (18,334) with flint,

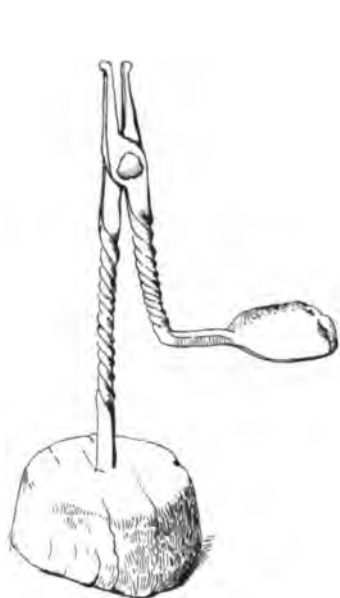


Fig. 12.

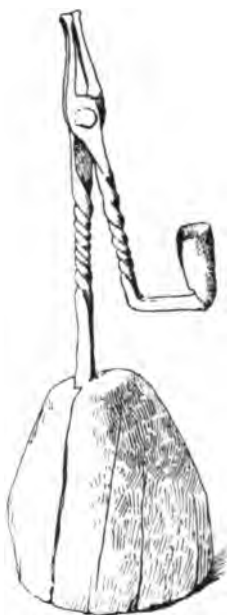


Fig. 13.

Rush-light Holders (20,065-66), Yspyty, North Wales. Gift of Mrs. Charles C. Harrison.

steel, tinder, and sulphur-tipped matches from Mrs. William Frishmuth.

The Rev. Samuel J. Blum, Principal of Nazareth Hall, Nazareth, Pa., has given a pair of ancient iron snuffers (20,016) from Nazareth.

Mr. Charles Laubach, of Riegelsville, Pa., has given an ancient steel with tobacco-pipe prick (20,100), three sheet-iron lard-oil lamps (20,102-04), a pewter "fluid" lamp (20,101), a blacksmith's forge lantern (20,105), a perforated tin lantern (20,119), and a pair of iron snuffers (20,114). Mr. Laubach writes that one of the lard lamps was used by his grandfather, John George Laubach, from 1796 to 1863, when he died, at the age of eighty-nine years. The other two were also used by his grandfather, and afterwards by his uncle, and bought at his sale a few years ago. "The wicks of the earlier lamps were made by twisting tow very tightly. Early in this century the wicks were made by twisting cotton in the same way. Later

(1850) the wicks were bought ready twisted. The blacksmith's lantern was used by John Dickson during the early part of this century for lighting his blacksmith shop. He died in 1889, aged nearly ninety-eight years. His father had been a blacksmith at the Durham Iron Works, as also his grandfather. The latter helped to manufacture the 'great chain' across the Hudson during the Revolutionary War. The perforated tin lantern was used from 1812 to 1850. The snuffers were used in my father's family from 1828 to 1850."

Mrs. Jacob H. Lazarus, of New York City, has given an antique brass candlestick (20,136); Mr. George Washington Fackenthal, P. M., Riegelsville, Pa., a pair of antique hand-irons (20,073), and a pair of tongs (20,074), from Bucks County, Pa., and Miss Louise Claghorn an antique Roman lamp (20,124).

Games.—The Museum has received from the Cav. A. Milani, through the courtesy of Prof. Henry H. Giglioli, of Florence, casts of the following dice and gaming pieces in the Royal Archæological Museum, Florence.

A. In the Egyptian Museum:

20,083. Pyramid-shaped die of ivory, with points inlaid with amber and numbered up to "four," with "one" repeated.

20,084. Man, button-shaped, of greenish glass.

20,085. Man, spindle-shaped, blue porcelain glaze.

20,086. Man, similar to preceding, but smaller.

20,087. Man, lozenge-shaped; agate.

B. In the Etruscan Museum:

20,088. Cubical die of bone, numbered up to 6 with concentrically cut points.

20,089. Die; three united, each numbered on the sides with the points: 3, 4, 5.

20,090. Cubical die, numbered only on one side with four points.

20,091. Man, of serpentine, faceted on one side.

Dr. Max Uhle has presented a pack of Trappola cards (20,111) used in Silesia and made by F. A. Lattmann, Goslar, and Mr. F. Webb Hodge, of Washington, a pack of Spanish cards (20,122) purchased in Mexico and manufactured by the

Consolidated Card Company of New York. Mr. Frank Hamilton Cushing presented a set of four canes (20,031) for the game of *Sho-li-we*, from Zuni, N. M., and Dr. T. P. Martin, of Taos, N. M., a set of staves and counting sticks (20,123) for the Tewan game of *Ca-se-he-a-pa-na* (Spanish, *Pastore*) as played at Taos. Both Mr. Cushing and Dr. Martin have also contributed detailed accounts of these games, which will appear in the catalogue of the joint exhibit of the University Museum and the United States National Museum at the Atlanta Exposition in the *Report of the United States National Museum* for 1896.

Numismatics.—The Museum has been fortunate in receiving as a deposit an extremely valuable collection, consisting in greater part of gold and silver, which has been in part placed on exhibition in the American Hall. The portion exhibited comprises American Colonial and State coinages; United States gold and silver; coins of Mexico, the Central and South American States; of Great Britain, France, Belgium, Switzerland, Spain, Portugal, Italy, Russia, Bulgaria, Roumania, Servia, Greece, Turkey, India, Africa, China, and Japan. In addition, there is a valuable series as yet undisplayed of the coins and medals of Austria, Germany, Netherlands, Denmark, Norway, and Sweden, and some very fine Greek and Roman gold coins.

The American colonial coinages are of extreme rarity and value, comprising a set of the Summer Island (Bermuda) pieces, shilling, sixpence, threepence, and twopence, from the Montague sale; a New England shilling; twelve Massachusetts shillings, two Massachusetts sixpences, and four twopences, one of the latter of copper. The Lord Baltimore coinage includes, in addition to the shilling, sixpence (two) and groat, the excessively rare penny (but one other is known) from the Montague sale. In the Rosa Americana series (thirty-two specimens) are many rare types, while the Wood coinage comprises the II, I, and $\frac{1}{2}$ d. figured by Crosby (Plate III, 10–13). Among other rarities are the Chalmers' shilling, with thirteen links on the reverse (Crosby, Fig. 68).

The collection of American gold is peculiarly complete and

valuable, comprising among other rarities the 1815 and 1822 half eagle. Among the private gold issues are a representative series of California, Colorado, Georgia, North Carolina, Utah, and Oregon coinages. The American silver: dollars, half dollars, quarters, twenty cents, dimes, and half dimes is arranged with reference to mint marks, in accordance with Haseltine's type-table catalogue.

An interesting series of medals of the Columbian celebration (1892-1893) has also been deposited, comprising the Barcelona medals (4); Huelva (3); Madrid (16, including the official silver and bronze medals); Milan (3); Genoa (2); New York (1), and Chicago (19).

Dr. S. Weir Mitchell¹ has presented a silver medal (18,333)



Fig. 14.—Medal of the University of Pennsylvania, 1814 (18,333). Gift of Dr. S. Weir Mitchell.

of the University of Pennsylvania, awarded to G. Read, 1814, Fig. 14.

Obverse: Seal of the University; reverse, *LEG. AUCTORITATE UNIVERSITATIS ADJUDICATUM*. In field (engraved in script), G. Read, 1814. Size, 26.

Mr. A. S. W. Rosenbach, who kindly undertook the inquiry, has furnished the following particulars concerning the medal, extracted from the minutes of the Proceedings of the Board of Trustees (MS.):

¹ Dr. Mitchell kindly states that the medal was found among the papers of his old and valued friend, George Read, Esq., and was given to him by his nieces, the Misses Fisher, daughters of Coleman Fisher, Esq.

Thursday, November 23d, 1813.—3. "At the examinations suitable rewards shall be assigned to such of the Students as shall have distinguished themselves by obedience to the Statutes and Discipline of the University and by proficiency in their studies, and the Faculty in the Arts are requested to digest and propose regulations upon this subject."

Thursday, March 1st, 1814.—"A letter of this date was received from the Faculty, on the subject of the third article of the report of the Committee to whom the Provost's communication of the 11th October was referred, recommending the having medals struck for the purposes mentioned in the said communication and report, which being considered was reported to Mr. Hopkinson and Mr. Meredith to take order thereon."

Tuesday, May 3d, 1814.—"The committee appointed the 1st day of March, to have Medals struck, agreeably to the suggestion of the Faculty made the 2nd November and of the report of the Committee on that subject of the 23 November, reported that they had employed the gentlemen of the United States Mint for that purpose, who had obligingly executed the same by sinking a Die and striking therefrom 30 Medals in fine Silver; which were produced by the committee of the Board, together with a Bill amounting to \$78.78 for the work done and the Silver contained in the said Medals."

Thursday, June 7th, 1814.—"An account for making the Medals ordered agreeably to the resolution of the Board, and for the Silver, amounting to \$78.78 presented at the last meeting was ordered to be paid."

Saturday, January 7th, 1815.—"Ordered, that the Committee upon the general rules report to the board, as soon as conveniently they can, a permanent plan for the distribution of Medals."

Tuesday, May 4th, 1819.—"That it is inexpedient to adopt the plan of distributing Medals as honorary distinctions among the students of the University."

In the Biographical Catalogue of the Matriculates of the College, 1749-1893 (Philadelphia, 1894), there appears the entry under the Class of 1817: George Read, A. M., b. Phila-

Fig. 1.

Fig. 2.

Fig. 13.



Plate 7.—Fig. 1. Soapstone Pipe (13,554). Fig. 2. Soapstone Pipe (13,601)—Bear. Fig. 3. Terra-cotta Pipe (13,538). Kershaw, S. C. $\frac{1}{4}$. Formerly in the collection of Dr. Samuel G. Morton. Gift of Mrs. H. W. Miller.

delphia, June 10th, 1787, d. Philadelphia, March 18, 1889. s. William Read and Anne McCall. Entered 1814, Moderator Philo. U. S. Consul Malaga, Spain, 1817-55."

The dies, and a similar medal granted to Samuel Marx, A. M., of the Class of 1815, are conserved in the archives of the College.¹ In the Matriculate Catalogue there appears under Mr. Marx, name: "Awarded a silver medal for scholarship," but there is no mention in the catalogue of the medal of Mr. Read, or of any similar award.

Gifts of coins have been received from Octavio A. Gamez, 1900, M. D.; Mr. A. Sidney Millward, and from Mr. T. Colvin Randall.

Pipes.—The following specimens have been presented by Mrs. W. H. Miller:

13,537. Terra-cotta pipe bowl, with double row of reed impression decoration on either side; accompanied by the following label: "Taken from an Indian grave, on the plantation of Rosalie King, in Liberty County, Georgia. The skeleton was found in a sitting posture, with the hands in the lap, holding this pipe and two balls like the accompanying. This pipe, when whole, was of this shape U, but was, unfortunately, broken by a mischievous boy and the other half lost. The other ball was retained by Mr. King, Liberty County, Georgia, March 25th, 1853. J. C. I."

13,538. Terra-cotta pipe, Plate 7, Fig. 3, with junction ridges and lozenge-shaped double lines, simulating lacings, derived from pieced tube of gourds or large canes. "Kershaw, S. Carolina, Dr. Blanding." "Dr. Wm. Blanding to Dr. S. G. Morton, 1845." Imperfectly figured by Schoolcraft, Vol. 2, Plate 43.

13,554. Soapstone pipe (copy of terra-cotta pipe), Plate 7, Fig. 1, with line and dot decorations. Label: "This pipe was dug up at the Friends' Graveyard, Camden, S. C., about 2 feet below the surface. The site of an ancient Indian town, half a mile from the Wateree. Presented me by Col. J. Kershaw. W. Blanding." Incorrectly figured by Schoolcraft, Vol. 2, Plate 43.

¹The medal of Samuel Marx has since been placed in the Numismatic cabinet in the Museum (20,150).

13,601. Large soapstone pipe, Plate 7, Fig. 2, with tubular bowl, representing bear. Extreme length, $6\frac{1}{2}$ inches. From Camden, S. C. "Dr. Wm. Blanding to Dr. S. G. Morton, 1845." Imperfectly figured by Schoolcraft, Vol. 2, Plate 45.

13,536. Soapstone horn-shaped tubular pipe or smoking tube, $5\frac{1}{4}$ inches in length, with the following label: "This pipe was dug up on the bank of Little Pine Tree Creek, near Camden, S. C., at Carter's Mills, 9th July, 1829, and presented to me by Captain B. Carter. W. Blanding." "Dr. Wm. Blanding to Dr. S. G. Morton, 1845."

13,539. Green soapstone pipe of flat taper-stemmed variety, showing defective stem perforation, with numeric scoring near tip, and pottery derived decoration on bowl.

13,521. Very early catlinite pipe, of plain form, but showing enclosed lozenge-shaped decoration at either side. Length, $4\frac{1}{8}$ inches. Probably Mandan or Aricaree.

13,522. Laurel root pipe in form of the typical Cherokee stone pipe, decorated with run-in lead bands at top of bowl and at stem end.

13,523. Modern clay-stone pipe of Southern Indians, with perforated plume-comb at base, and short alder wood stem.

13,540. Pewter tomahawk pipe; wooden stem, bound with bands of German silver to represent quill decorations of primitive period. Length of stem, 17 inches. Probably Sauk and Fox, Iowa.

LIBRARY.

The following are among the most important acquisitions since the last issue of the *BULLETIN* :

Galerie Americaine du Musée d' Ethnographie du Trocadéro, choix de pièces archéologiques et ethnographiques décrites et figurées par le Dr. E. T. Hamy, 1ère partie. Paris, 1897.

Gift of *M. le Duc de Loubat*.

Die Ruinstætte von Tiahuanaco in hochlande des alten Peru. Ein kulturgeschichtliche studie auf grund selbstaendiger aufnahmen von A. Stübel und M. Uhle, Breslau, 1892.

Gift of *Dr. Max Uhle*.

Certain Aboriginal Mounds of the Georgia Coast, by Clarence B. Moore. Inhumation and Incineration in Europe, by the Marquis de Nadaillac. Philadelphia, 1897.

Gift of *Clarence B. Moore, Esq.*

The Testimony of Tradition. London, 1890.

Fians, Faries, and Picts. London, 1893. By David MacRitchie.

Gifts of the *Author*.

Compte-rendu de la Commission Impérial Archéologique. 1891-1894.

Matériaux pour servir à l'archéologie de la Russie. Nos. 13-20.

Gifts of the *Imperial Russian Archæological Commission*.

Apuntés de Epigraffia Mexicana por Jesús Galindo y Villa. Mexico, 1894.

Gift of *La Sociedad "Antonio Alzate."*

Reports of the New York State Museum. 1889-1895, 10 volumes.

Gift of the *University of the State of New York*.

Ethnographische Musea in Midden-Europa door Dr. J. D. E. Schmeltz. Leiden, 1896.

De Wajang Poerwa eene ethnologische studie door L. Serurier. Leiden, 1896.

Gifts of the *Rijks Ethnographisch Museum, Leiden, Holland*.

Reports of the Peabody Museum of American Archæology and Ethnology, Vol. II, 1876-79 ; Vol. III, 1880-86.

Memoirs of the Peabody Museum of American Archæology and Ethnology, Vol. I, Nos. 1, 2, and 3.

Contributions to the Archæology of Missouri, Salem, Mass., 1880.

Gifts of the Peabody Museum.

EXCHANGES.

An exchange of publications has been made with the following additional societies and institutions since the last issue :

Berliner Gesellschaft für Anthropologie, Ethnologie, und Urgeschichte.

Kansas State Historical Society, Topeka, Kansas.

Koloniaal Museum, Haarlem.

Kroatische Archäologische Gesellschaft, Agram.

Manchester Geographical Society, Manchester, England.

Leland Stanford University, Palo Alto, Cal.

Sociedad "Antonio Alzate," Mexico.

Numismatic and Antiquarian Society of Montreal.

La Société d'Anthropologie de Paris.

Archæological Museum, Toronto, Canada.

LECTURES.

The afternoon lectures on the Museum collections will be resumed in the American Hall in the Library Building, Thirty-fourth and Woodland Avenue, on Wednesdays at 4 P. M., after the first of the year.

RECEIVED,
JUN 4 1893
PEABODY MUSEUM.

BULLETIN
OF THE
Free Museum of Science ^{AND} Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

No. 3. PHILADELPHIA, APRIL, 1898. VOL. I.

♂ AMERICAN INDIAN GAMES.¹

By STEWART COLIN.

Our ideas of a game are primarily associated with mirth, amusement, play, such, indeed, being the original meaning of our English word. A careful examination of games, however, reveals the fact that they originated not as pastimes, but as serious divinatory contests. This is especially true of the games of those we call primitive people or savages.

We quickly find that a distinction may be drawn between these sacred and divinatory games and the mimetic plays of children. In speaking of games I shall confine myself to the former class alone. The latter constitute another, though related chapter, in the history of culture. Children play at real games as they play at every other serious business of life. They thus perpetuate games that have otherwise disappeared. Hence the value of children's games in our study. At the same time, this observation applies chiefly to the higher cultures. In savagery we deal with the games of adults,—first of men, then women,—with games so complex that no child-mind

¹ Presidential Address, American Folk-Lore Society, Baltimore, Md., December, 1897.

could grasp their principles or objects ; with games so wrought and interwoven with primitive concepts of nature and the universe that no modern mind could create or invent them.

When we review the true or divinatory games of the world, no matter how or in what manner they are played, we find their underlying objects and principles precisely the same. One and all they appear as aids in that instinctive process of classification by which humanity endeavored to establish the connotation of unrelated facts, as the devices through which the gods or the cosmic forces might be led to reveal the unknown or hidden relations that exist between man and his environments. The central idea upon which this classification is based, as first distinctly insisted upon by my distinguished colleague, Dr. Daniel G. Brinton, is that of the four quarters of the world. Corresponding with the world quarters, we have the four seasons. With these, again, are associated the primary colors. By the aid of simple and obvious analogies we may extend the classification to beasts, birds, and men ; to human relations, family and communal, secular and sacerdotal ; to inanimate nature, the stars, the sentiments, emotions, to everything, in fact, for which the tongue has framed a name. Such indeed is the comparatively simple mental process that we find to have been practically common to mankind. I should mention here that with the Four Directions was associated a fifth, the Centre, thus establishing categories of fives instead of fours, and again with these Five Directions, the Above and Below, the Upper and Lower regions, extending the number of directions to seven. Not infrequently we discover the intermediary points assuming equal importance with the quarters, resulting in a division among eight, or with the middle, nine. Yet another assignment to the world quarters and their extensions, of high importance in games, remains to be considered, that of number. Thus, the number attributed to the North may be one ; to the West, two ; to the South, three, and to the East, four ; or the numbers from one to nine may be distributed among the eight points of the circuit and the centre.

Another fact of importance should also be noted : the connotations of direction and color are not invariable, and do not agree

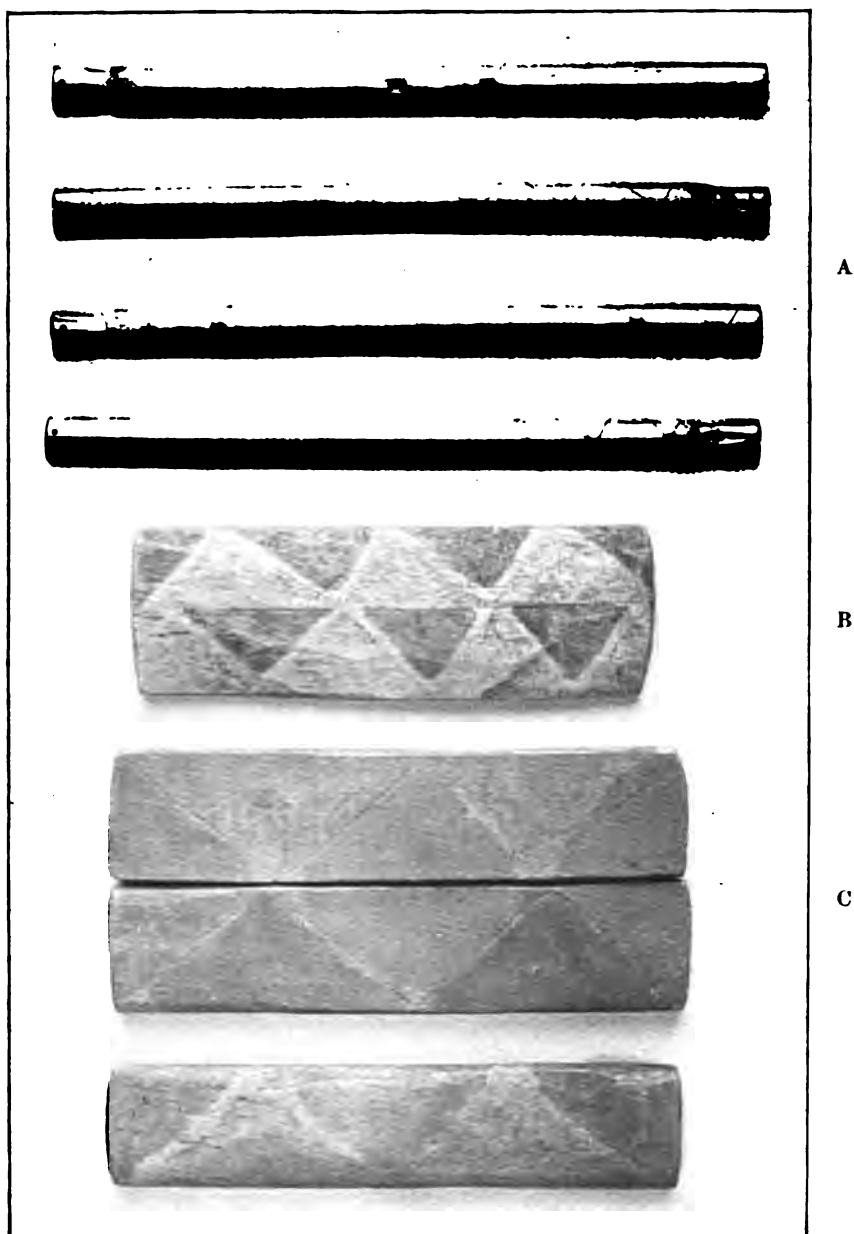


Plate 8.—Zuñi cane and wood gaming staves; obverse, showing derivation of chevron pattern on wooden staves from engraved canes. A, Set of four canes, United States National Museum, 69,277; B, Painted staff, one of set of three, United States National Museum, 69,003; C, Set of three painted staves, Museum of Science and Art, 16,211.

in the Old and New Worlds—do not agree, in fact, between adjacent tribes on the American continent.

Having thus outlined the fundamental principle underlying games, I desire, before proceeding to the immediate subject of my address, to say a few words as to the methods we should employ in the comparative study of games to insure results of certain value in ethnographic science. Collection and publication, while in themselves diverting, are merely preparatory. They but afford us materials with which to approach the solution of one of the important problems in man's life and development; that of the interdependence of his culture and the location of the centre or centres from which it emanated.

Superficial comparisons, however close the similarities evoked, amaze, rather than enlighten. Identity of customs and myths are no longer regarded as proof of a common origin, and the functional similarities which characterize games are scarcely of higher ethnical value than those observed by the zoölogist in reviewing the animal kingdom.

There are two kinds of evidence, however, which, taken together, afford promise of trustworthy results in our work; the first we find in linguistics and the second in morphology. From a linguistic side we derive less advantage as yet in the American Indian games than in the corresponding games of Asia. The identity of chess is asserted by its name from China to the shores of the Atlantic; and the Hindu *Pachisi* is recognized and understood from Persia to the Philippines. In America we may trace the analogue of the latter game under its name of *Patole*, from the ancient Aztecs to the existing pueblos of New Mexico. In general, however, the American Indian names of games are descriptive and vary from language to language though sometimes identical among tribes of the same stock.

Experience leads me to attach by far the highest importance to our second source of information: that of morphology. It is their objective side, indeed, that lends to games their peculiar value in the field of study represented by this Society, and a demonstration, based upon the material before me, will form the concluding part of my address. The games of the American

Indians may be arranged in four principal classes, represented by Lacrosse, or batted-ball; Chunkee, or "ring and javelin;" "Straw," or "Indian cards," and "Platter," or dice. This natural classification was employed by Mr. Andrew MacFarland Davis in his admirable memoir¹ which practically exhausted the literature of the subject down to the time of its publication. I have drawn in my own work chiefly upon the resources of museums and the obliging and never-failing assistance of many original observers. With reference to Indian games in general, I desire to say that all the games in each of the four classes named appear to be related, either directly to each other, or to a common source, throughout the entire area of their distribution, and that one of them, at least, appears to have been practically universal in the northern continent. Again, that they present no anomalies, and that corresponding games in three out of the four mentioned classes exist as equally representative and widely distributed games in the Eastern hemisphere.

It would not be difficult to extend the list of typical games, as, for example, by the addition of certain guessing games played with marked bones; but these, like others, will be found to be the products of one of those mentioned.

For the purposes of illustration, I have selected the last of the four classes for exhibition and comment. The games of this class, comprising the platter or dice of the Atlantic Coast, the plumstone game of the Sioux, and the game of tossed canes or staves in the Southwest, I have found recorded as existing among some 61 tribes,² comprised in 23

¹ *Indian Games*, Bulletin of the Essex Institute, XVII, 89; XVIII, 163.

² *Algonquian*: Arapaho, Cheyenne, Chippeway, Illinois, Massachusetts, Menominee, Micmac, Narraganset, Nipissing, Ojibwa, Passamaquoddy, Penobscot, Siksika; *Athapascan*: Apache, Navajo; *Caddoan*: Arikara, Pawnee; *Eskimauan*: Eskimo; *Iroquoian*: Delaware, Huron, Iroquois, Mohawk, Onondaga, Seneca, Tuscarora; *Keresan*: Keres (Acoma, Cochite Laguna, San Felipe, Sia); *Kiowan*: Kiowa; *Koluschan*: Tlingit; *Lutuamian*: Klamath; *Mariposan*: Yokut; *Natchezan*: Natchez; *Piman*: Papago, Pima, Tarahumara, Tepeguana; *Punjunan*: Nishinam; *Salishan*: Clallam, Cowlitz, Lkuffigen, Lummi, Nisqualli, Nslakyapamuk, Queniut, Skagit, Snohomish, Soke, Sushwap, Twana; *Shahaptian*: Klikitat; *Shoshonean*: Comanche, Paiute, Shoshoni, Unikaret; *Siouan*: Assinaboin, Dakota (Sisseton, Teton (Brule)

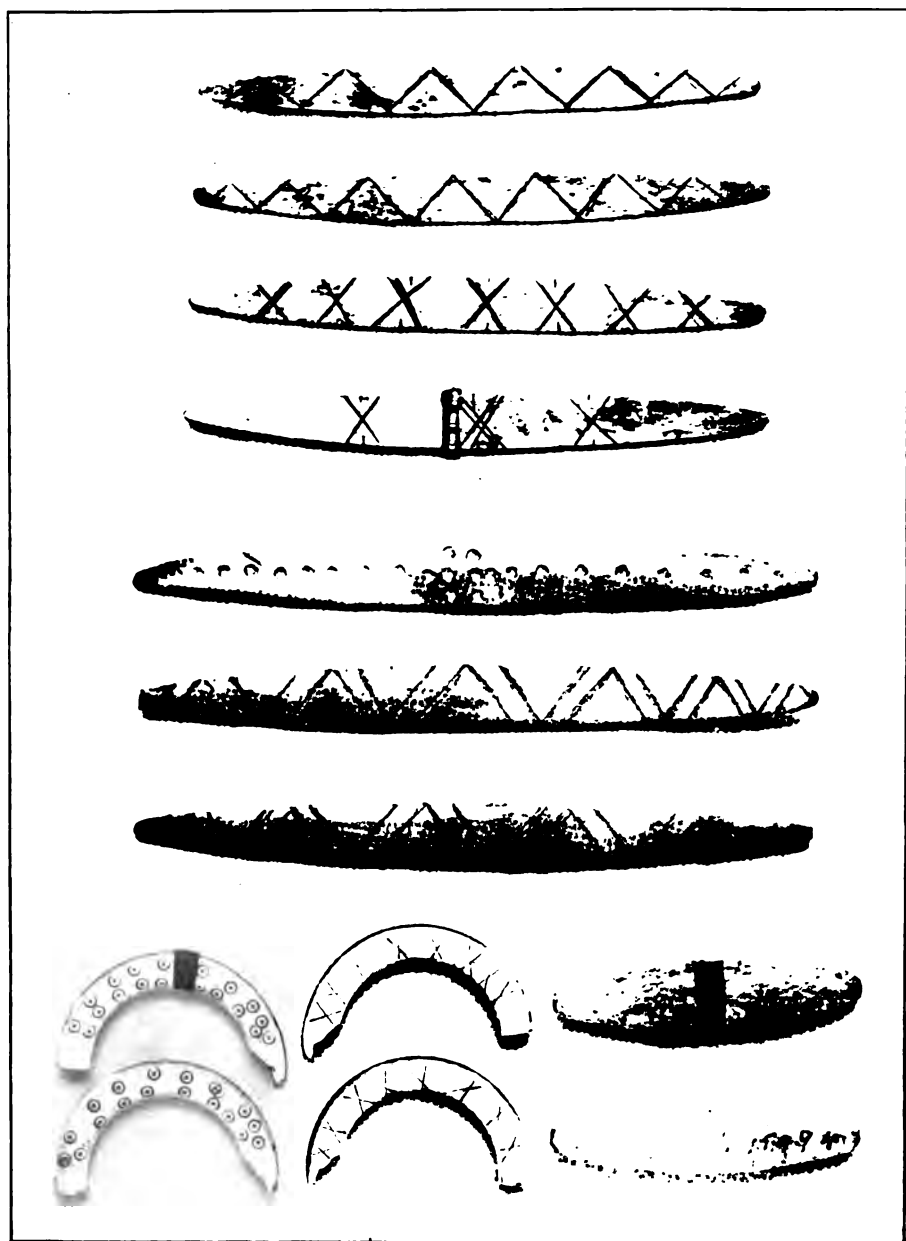


Plate 9.—A, B, Blackfeet bone gaming staves, showing chevron decoration and tied piece; the probable source of the beaver teeth game (C) of the Columbia River, as well as the bone-guessing game implements (D), (one tied) of the northern tribes. A, Blackfeet, Field Columbian Museum, 51,693; B, Blackfeet, Field Columbian Museum, 51,694; C, Twana, Washington, Museum of Science and Art, 20,930; D, Alaska, Museum of Science and Art, 15,494.

linguistic stocks, described or collected by some 75 observers,¹ extending from the year 1634 down to the present, and represented by some 90 specimens of implements from 41 tribes, 18 stocks and 39 collectors in the five principal American museums of ethnology: Washington, New York, Chicago, Cambridge, and Philadelphia, and the hands of five individuals. The older accounts of the game among the Indians of Mexico are not included in this enumeration.

Among all these tribes the principle of the game is invariably the same. Two-faced lots are tossed and numerical values attributed to the various combinations. The number of these lots varies from three to 13, four being the most common. Their form and material range from slips of caue, about a span in length, through wooden staves and blocks of various sizes to fruit stones, and disks of bone, and even beans. The numerical counts attributed to their falls in general bear a relation to the number of heads or tails that come uppermost, but the count is often augmented by one or more of the lots, distinguished by marks from the others, turning in a specified manner. The methods of tossing are much diversified. The fruit

Yankton), Iowa, Mandan, Minnetaree, Omaha; *Tanonan*: Tewa (Isleta, Santa Clara, San Ildefonso, Taos, Tesuque); *Waukeshan*: Kwakiutl, Macah; *Yuman*: Cocopa, Havasupai, Mohave; *Zuñian*: Zúñi.

¹ A. B. Averill, Paul Beckwith, W. M. Beauchamp, Franz Boas, H. M. Brackenridge, J. Breboeuf, Mrs. W. W. Brown, Jacques Bruyas, George Catlin, P. de Charlevoix, E. C. Cherouse, Frank H. Cushing, Dr. Z. T. Daniel, William H. Danilson, Edwin T. Denig, William Dinwiddie, George A. Dorsey, T. S. Dozier, J. Owen Dorsey, L. S. Dyer, Myron Eels, Geo. B. Emmons, Miss Alice C. Fletcher, A. S. Gatschet, George Gibbs, Dr. Gray, George Bird Grinnell, Stansbury Hager, Charles Francis Hall, John N. B. Hewitt, Walter T. Hoffman, G. Wharton James, Peter Jones, J. P. Kimball, J. Lalemant, Le Page du Pratz, Francis Le Fleche, J. Long, G. H. Loskiel, Carl Lumholtz, Charles F. Lummis, Charles E. McChesney, W. J. McGee, C. N. B. Macauley, T. P. Martin, Washington Matthews, James Mooney, Lewis H. Morgan, Joseph Nicolai, Edward Palmer, Nicolas Perrott, Zebulon M. Pike, J. W. Powell, George H. Pradt, Horatio N. Rust, Steven Powers, Henry R. Schoolcraft, H. L. Scott, Benjamin Sharp, Col. James Smith, George E. Starr, James Stevenson, Mrs. M. C. Stevenson, Matthew F. Stevenson, Mrs. G. Stout, James G. Swan, John Tanner, James Teit, Sagard Theodat, J. Hammond Trumbull, H. R. Voth, G. M. West, Roger Williams, Edward F. Wilson, William Wood.

stones and bone disks are usually thrown in a bowl or platter or in a small basket; the canes tossed or shot against a suspended blanket or skin, and the wooden staves struck on a stone, ends down, so that they rebound, hit sharply on a stone held beneath, or allowed to fall from some little height upon a blanket placed upon the ground.

There are two principal methods of keeping count: one by means of a bundle of stick or tallies, of which the observed numbers are 8, 12, 15, 32, 40, $48+4$, $48+5$, $51+4$, and 100; the other, with pieces, now designated as "horses," moved around a circuit usually consisting of small stones arranged



Fig. 15.—Zuni Canes for *Sho-li-wo*, showing inside marks referring to the four directions.

upon the ground. The shape of the circuit is either rectangular or circular, and the number of openings, called "houses," 40, although in one instance 160 has been observed. The 40 stones are usually arranged in tens, with reference to the four cardinal points, towards which, when the circuit is circular, larger spaces, called "rivers" are sometimes left open. With reference to the two methods of keeping count, the one with tallies is invariably used when the lots are tossed in a bowl or basket, and with the beaver teeth. On the contrary, the counting circuit is almost always used when staves are employed.

Comparison of such names of games as are recorded reveals no similarities outside of the same linguistic stock.

I shall proceed now to a detailed examination of one of the games of this group as played in Zuni, and as described to me by my friend and collaborator, Mr. Cushing. It is known in



Plate 10.—Obverse of four banded or cross-marked gaming sticks from as many sets, the ones which augment the throw and regarded by the author as the representatives of the atlal. A, Zufi (cane), Museum of Science and Art, 16,543; B, Tewa (wood), Museum of Science and Art, 20,153; C, Kiowa (wood), United States National Museum, 152,906d; D, Tepeguana (wood), American Museum of Natural History, ⁶⁵1038

the native language as *shó-li-we*. The lots employed in it are four slips of reed (Plate 8, A) each marked in a distinctive manner on the outer side, and in a corresponding way with black paint within. The name *shó-li-we* is derived, according to Mr. Cushing, from *shooli*, "arrow," and *we*, plural ending, signifying "parts of," and may be translated, therefore, as

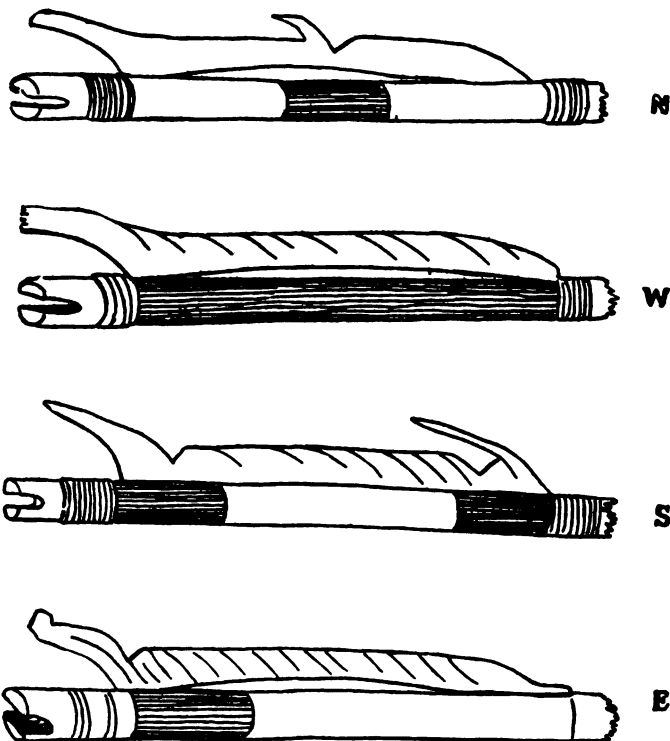


Fig. 16.—Zúfi arrow-shaftments of the four directions. From a sketch by Frank Hamilton Cushing.

"cane-arrow pieces" or "parts." Mr. Cushing has pointed out to me that from the fact that these slips are so split and cut from the canes as to include at their lower ends portions of the joints or septæ, and from the further fact that they are variously banded with black or red paint or otherwise, it may be seen that they represent the footings or shaftments of cane arrows, which the septæ at the lower ends serve as stops for

the footing or nocking plugs. The bandings of the slips (Fig. 15) are representative of the rib-bandings of cane-arrow shaftments (Fig. 16). Mr. Cushing has found that the arrow sets of Zuni, as well as the ancestral Cliff Dweller arrows were thus ribbanded with black or red paint, to symbolize in the arrows so marked the numerical signs or mystical values and succession of the four quarters. Each set, especially of war arrows, consisted of four sub-sets, the shaftments of each differently marked. Without dwelling further upon their origin and significance, we find one slip, banded only at the middle, associated with the North, and called the *á-thlu-a*, or the "all speeder," or "sender." Another, blackened its entire length, associated with the West, and called the *k'wí-ni-kwa* or the black. Another, banded at either end, associated with the South, and called the *pathl-to-a*, or "divider divided;" and, finally, the cane slip of the East, banded only at one end and called the *kó-ha-kwa*, "white," or "white medicine."

There is a peculiarity in the method of tossing. The *á-thlu-a* or "all sender," was laid across the two middle fingers and the other three slips upon it, inside of one another, all being then cast together. From its name and use in casting, Mr. Cushing drew a pointed comparison between the *á-thlu-a* and the ancient Mexican *atlatl* or throwing-stick.

A more popular game in Zuni is called *Tá-shó-li-we*, "wood canes," or "arrows," and is played with staves instead of canes (Plate 8, B, C). It would appear that the wooden staves are substitutes for canes, a fact which is abundantly confirmed by the wooden lots used by adjacent tribes. Many of the latter are grooved like the cane on the inner side, and even some of the ungrooved ones

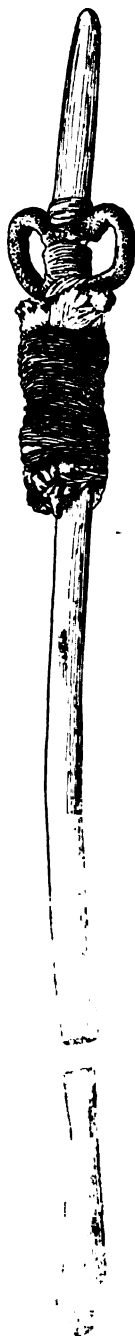


Fig. 17.—Cliff Dwellers' Atlatl or "Throwing-stick."
(Reproduction of original in Museum of the Smithsonian Institution.)

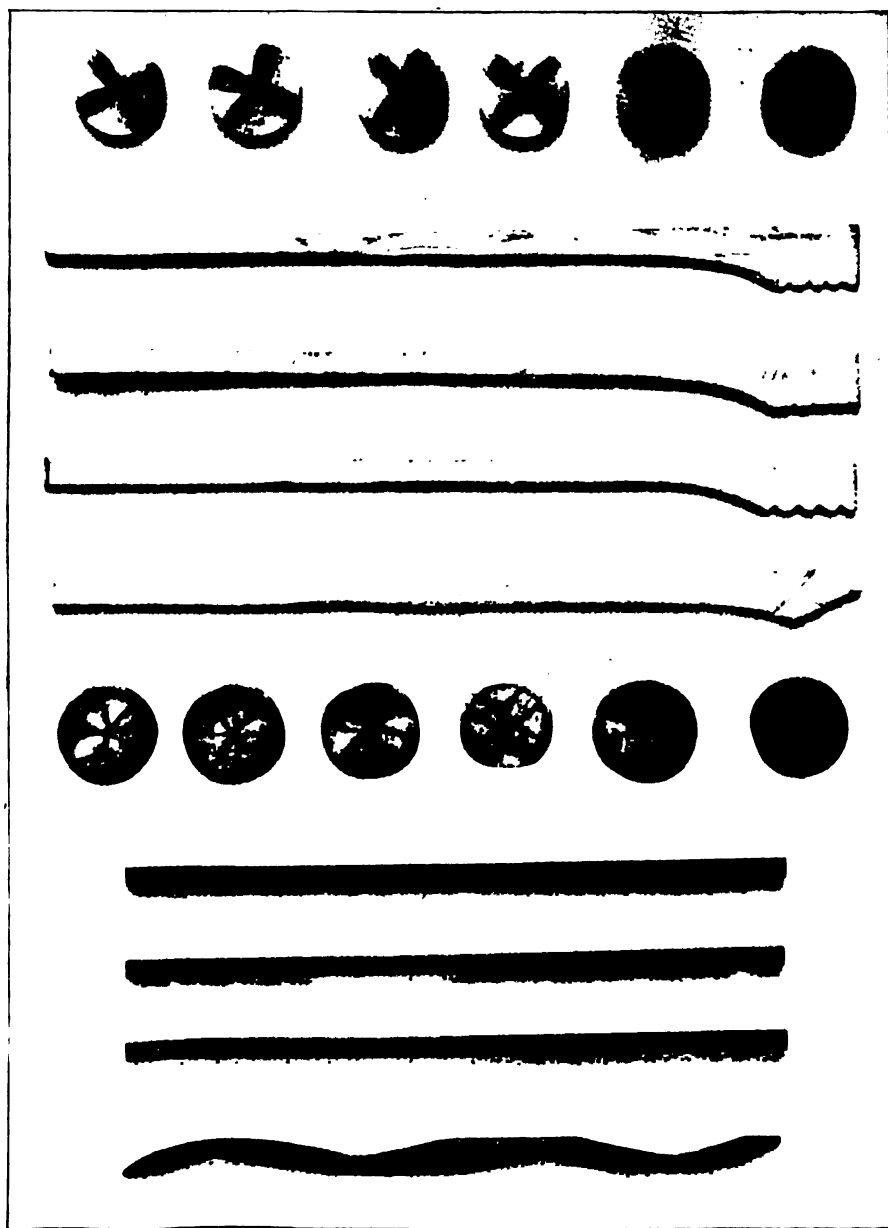


Plate 11.—Micmac and Penobscot dice games. The lot staves are replaced with disks of bone, but the three arrows and atlatl appear among the counting sticks; in the second game the atlatl is replaced by a bow. A, Micmac, Nova Scotia, Museum of Science and Art, 18,850; B, Penobscot, Maine, Museum of Science and Art, 20,951.

have a longitudinal band of red paint, as for example those of the Cocopa, simulating the hollow cane. There is abundant evidence to confirm the cane-arrow ancestry of the staves and blocks.

Scrutinizing the series of sets of gaming implements for some common peculiarity, we find that practically all of them have one of the lot pieces tied round the middle with cord or sinew, or burned or engraved with a transverse band (Plate 9, A, B). On some this mark is in the form of a cross, and suggests tying and something tied to the stick. The peculiarity extends to the beaver-teeth dice used by the Indians of the Columbia River (Plate 9 C) and is most significantly discernible on some of the lot staves from the Southwestern Pueblos. This transversely marked or tied piece is the one that augments the throw.

It recently occurred to the speaker that the explication of this piece might lead to the discovery of the common principle or source of origin in the game. The cane slip so marked in one of the Zuni sets (Plate 10, A) proved to be the one painted only in the middle of the inner side and designated as the *á-thlu-a*. Mr. Cushing had already suggested to me that this slip, which is placed beneath the others in throwing, corresponded with the *atlall*. Comparison of the banded sticks with a prehistoric throwing-stick from a Cliff Dwelling in Colorado (Fig. 17) led to my conclusion that the banded sticks actually represented the *atlall*, the cross marks perpetuating the crossed wrappings for attachment of its finger-loops. The Cliff Dweller *atlall*

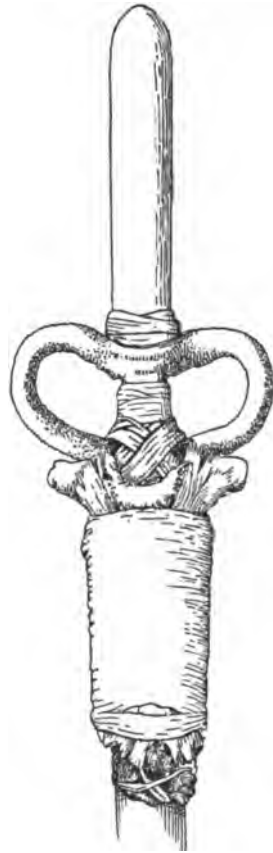


Fig. 18.—Handle of Atlatl, showing cross-wrappings for attachments of finger-loops. Probably original of tied gaming staff. Cliff Dwelling, Mancos Cañon, Colorado. Museum of Science and Art.

has finger-loops of leather, which are cross-wrapped on both sides of the shaft (Fig. 18). It is also wrapped at the finger-loops with colored yarn, now a uniform brown, but which Mr. Cushing regards as having been originally of various colors.

In a set of gaming sticks from the Tewan Pueblo of Santa Clara we find the banded stick (Plate 10, B) marked with a cross between fifteen transverse notches, which are painted green, red, yellow, and blue, the colors attributed to the world quarters. The colored notches, I assume, represent the yarn of different colors on the original throwing-stick. The fifteen notches, corresponding with a common name of the game, "Fifteen," Spanish *Quince*, probably stand for three turns around for each of the five colors.

My general conclusion as to the inter-relation of American Indian games is extended, in the case of the particular game I have described, to the belief that its various forms are not only derived, one from another, but that its place of origin may be definitely fixed in the country of the reed arrow and the *atlatl* or throwing stick—that is, in the arid region of the South-western United States and Northern or Central Mexico. It is in ancient Mexico that I conceive we find evidences of its highest development. What indeed is that pictured diagram in the Fejervary Codex (Plate 12), not without parallels in other manuscripts, but the counting circuit of the Four Quarters, set with colored grains on the North, West, South, and East, and in the middle the god with his three arrows and the *atlatl*, here as in Zufi, the presiding genius of the game.

In the "Hymn of Tlaloc" we read :

In Tlalocan, in the verdant house, they play at ball, they cast the reeds.¹

¹ *Rig Veda Americanus*. By Dr. Daniel G. Brinton.



Plate 12.—Fac simile of Plate 44. Fejervary Codex, regarded by the author as representing the divinatory (gaming) counting circuit of the Four Directions, with the god of the divination with his three arrows and atlatl in the middle.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

UNITED STATES (COLLINS COLLECTION).

The following collection of stone implements and pottery have been deposited by Mr. Thomas J. Collins, of Haddonfield, New Jersey. With a few minor exceptions they are surface finds, and were collected personally by the depositor.

ARIZONA.

Obsidian blade (20,822); four fragments pottery (20,823).

ALABAMA.

Eufaula.—Jasper spear head (20,818).

KENTUCKY.

Greenup (Ohio Valley), east towards Ashland (strip of a few miles)—Serrated blade (20,871); limonite concretion in form of small vessel (20,872); unfinished slate banner-stone (20,873); two hæmatite celts (20,874); ninety-eight flaked flint blades (20,875); cup stone (five cups) (20,888).

Harrison County (Ohio Valley).—Large flint blade, 5½ inches (20,876); boat-shaped stone, two perforations, Cynthiana (20,870).

NEW JERSEY.

Atlantic County.—Two grooved axes (20,796–97); six quartzite blades (20,798); two quartz blades (20,799); thirteen argillite blades (20,800); six rhyolite blades (20,801); four flint blades (20,802); six jasper blades and three oyster shells, shell heap, Nacott Creek, (20,803); tinder-box flint (20,804); ten fragments pottery (20,807); fragment steatite pot (20,813).

Burlington County.—Two grooved axes (20,790–91).

Camden County, Haddonfield.—Twenty-three pitted hammer-

stones (20,698); eight rubbing stones (20,699); seventeen quartzite boulders and pebbles, partly worked (20,700); twenty-five quartzite turtle-backs and flakes (20,701); thirty-two quartzite blades (20,702); ten partly worked fragments red argillite (20,703); forty-one argillite blades (20,704); forty partly worked fragments argillite (20,705); two hundred and twenty-nine argillite blades (20,706); eighty-seven quartz pebbles and flakes (20,707); seventy-one quartz blades (20,708); ninety-two jasper pebbles and flakes (20,709); eighty-nine jasper blades (20,710, 20,711); six flint nodules (20,711); twenty-five flint flakes (20,712); fifty-nine flint blades (20,713); five chert blades (20,714); rhyolite blade (20,715); blade, hornblende andesite, (20,716); nine grooved stone axes (20,718-26); three celts (20,727-29); large unfinished celt (20,730); celt, rechipped, (20,731); four small celts (20,732-35); chipped celt (20,736); müller (20,737); five pestles (20,738-42); sixteen oblong pebbles and boulders, showing marks of use (20,743); twelve grooved pebbles (20,744); hammer head (20,745); seven stone balls, faceted by rubbing (20,746); thirteen fragments sandstone sharpening stones (20,747); eleven fragments steatite vessels (20,748); two perforated fragments steatite (20,749); four blades of banner-stones (20,750-53); longitudinal half stone tube (20,754); fragment limonite (20,755); smoky quartz crystal (20,756); fragment copper plate (20,757); fragment native copper (20,758); paint stone (?) red argillite (20,759); fragment worked phyllite (20,760); sixty-three fragments pottery (20,761); pottery cylinder (20,762); fragment clay pipe stem (20,763); large sandstone pebble work block (20,764); large quartzite pebble work block (20,765); tooth of deer (20,766); fragment mica (20,767); fragment worked phyllite with transverse scratches (20,768).

Camden County.—Pitted hammer-stone (20,769); eight quartzite pebbles and boulders showing use (20,770); five grooved axes (20,771-75); polished celt (20,776); three pestles (20,777-79); two stone balls (20,780-81); five grooved pebbles, Collingswood, (20,782); two quartzite turtle-backs (20,783); fourteen argillite blades (20,784); quartzite blade (20,785); four quartz blades (20,786); jasper blade and flake

(20,787), sixteen flint blades (20,788); large blade, gabbro, (20,789); tubular concretion, sand and limonite (20,795).

Cumberland County.—Plummet (20,805); blade of banner-stone (20,806).

Salem County.—Grooved axe (20,792); grooved axe, hafted by Mr. Collins (20,793); eleven quartz and flint blades (20,794).

OHIO.

Toronto (Ohio Valley), north of town.—Five pitted stones (20,836–37); rubbing stone (20,838); four round stones (20,839); three partly worked pebbles (20,840); two notched pebbles (20,841); small grooved axe (20,842); hammer-stone (20,843); large black flint blade, $5\frac{3}{4}$ inches (20,844); large white flint blade, $5\frac{3}{4}$ inches (20,845); forty-four flint blades and chips (20,846).

Toronto (Ohio Valley), south from near Toronto to Steubenville, five or six miles.—Two pitted stones (20,847); two discoidal stones (20,848–49); three grooved axes (20,850–52); six celts (20,853–57); white quartz celt, chipped and ground, (20,858); two hæmatite celts (20,859–60); seven hæmatite paint stones (20,861); seventy-three flint flakes (20,862); one hundred and two flint blades (20,863); nine fragments pottery (20,864); perforated pottery disk (20,865); shell bead (20,866); two bone beads (20,867–68).

Muskingum Valley.—Three flint flakes (20,869).

Vinton County (Ohio Valley) McArthur.—Müller (20,914).

PENNSYLVANIA.

Allegheny County (Ohio Valley), Shoustown and Leetsdale (opposite right bank).—Two pitted stones (20,889); sandstone mortar (20,890); worked pebble (20,891); nine celts (20,892–900); two unfinished celts (20,901–902); two hæmatite celts (20,903); perforated slate pendant (20,904); fragment perforated slate gorget (20,905); slate pipe (20,906); partly perforated half stone cylinder (20,907); mouth-piece clay pipe stem (20,908); fragment clay pipe stem (20,909); seven fragments pottery (20,910); three hundred and twenty chipped flint blades and flakes (20,911); flattened bullet (20,913).

Bucks County, Sellersville.—Pestle (20,541); ball, 3 inches diameter, with drilled hole (20,542); scraper (20,543); hammer-stone (20,811) and two jasper flakes (20,812), Durham jasper quarry.

Cambria County (Conemaugh Valley), Johnstown.—Flint blade (20,697).

Chester County, Green Hill.—Two stone balls (20,537); near West Chester, quartz arrow head (20,538).

Clinton County (Susquehanna Valley), Mill Hall.—Four chipped blades (20,592).

Columbia County (Susquehanna Valley), Catawissa.—Pitted hammer-stone (20,567); seven notched pebbles (20,568); grooved axe (20,569); gorget, slate, with single perforation (20,570); fragment slate gorget (20,571); three argillite turtle-backs (20,572); small scraper (20,573); two fragments pottery (20,574); ten chipped celts (20,575–84); unfinished quartzite axe (20,585); two worked argillite pebbles (20,586); unfinished celt (20,587); two fragments steatite vessel (20,588); fifty-five chipped blades (20,589).

Dauphin County (Susquehanna Valley), Herndon.—Two notched pebbles (20,596); gorget, slate with partial perforation (20,597); unfinished grooved axe (20,598); chipped celt (20,599); chipped and polished celt (20,600); two small celts, (20,601–2); pebble scraper (?) (20,603); large quartzite flake (20,604); five turtle-backs (20,605); twenty-nine chipped blades, etc. (20,606–7); jasper blade (20,608); crooked chipped blade (20,609); spear head, 8½ inches, (20,610); two spear heads (20,611); fragments of steatite pot (20,612); fourteen fragments pottery (20,613).

Dauphin County, Haldeman's Island (mouth of the Juniata).—Twenty-seven notched pebbles (20,614); grooved axe (20,615); nine unfinished grooved axes (20,616–24); polished celt (20,625); nine small celts, in part broken (20,626–34); two chipped celts (20,635–36); fourteen roughly chipped pebble celts (20,637–50); nine long pestle-like stones (20,651); fragment gouge (20,652), and fragment highly polished steatite tube, diameter, one inch (20,653); fragment steatite pipe bowl (20,654); fragment perforated banner-stone (20,655); two frag-

ments gorgets (20,656); slick stone with cord marks (20,657); pitted hammer stone (20,658); three stone balls (20,659); six jasper blades and flakes (20,660); one hundred and thirty rhyolite blades (20,611); twenty-two rhyolite flakes and turtle-backs (20,662); five argillite blades (20,663); two quartzite blades (20,664); chert arrow head (20,665); fifty-seven blades (20,666); fifty-seven flakes and turtle backs (20,667); blade and flake (20,668); fragment chipped quartz (20,669); four fragments steatite pots (20,670); engraved pebble (20,671); twenty-four fragments pottery (20,672).

Jefferson County (Allegheny Valley), near Reynoldsville.—Slate gorget, two perforations, one incomplete (20,540).

Juniata County (Susquehanna Valley), Mifflintown.—Four hammer-stones (20,546); two notched pebbles (20,547); pestle (20,548); gouge (20,549); rubbing stone, round pebble, with four facets (20,550); ten chipped celts (20,551–60); slate scraper, $8\frac{1}{2}$ inches (20,561); two turtle-backs, rhyolite (20,562–3); twenty-eight chipped blades (20,564–5); four fragments pottery (20,566).

Lawrence County (Ohio Valley), Mahonington.—Pitted hammer-stone (20,808); grooved pebble (20,809); seven flint blades (20,810).

Luzerne County (Susquehanna Valley), Forty Fort.—Hammer stone (20,593); two chipped blades (20,594); ten fragments pottery (20,595).

Lycoming County (Susquehanna Valley), Muncy.—Two chipped blades (20,544); ten notched pebbles (20,545).

Montgomery County, Phoenixville.—Hammer-stone (20,539).

Perry County (Susquehanna Valley), from Duncannon to mouth of the Juniata.—Nineteen notched pebbles (20,673); three grooved axes, unfinished, (20,674–76); small celt (20,677); fragment banner-stone (20,678); two unfinished banner-stones, roughly blocked out, (20,679); three small pieces of perforated worked steatite (20,680); four fragments steatite pots (20,681); leaf-shaped blade, rhyolite, 5 inches long, (20,682); five rhyolite blades (20,683); glass bead (20,684); three pestles (20,685–87).

Somerset County.—Polished celt (20,590); thirteen chipped blades (20,591).

TENNESSEE.

Fragment pottery with basketry pattern, stone mound, (20,819); quartz arrow head, Loudon County, (20,820); small slab worked phyllite (20,821).

VIRGINIA.

Two quartzite blades (20,887).

WEST VIRGINIA.

Ravenswood (Ohio Valley).—Notched ball of hæmatite (20,878); hæmatite celt (20,879); hæmatite paint stone (20,880) fourteen flint blades (20,881); two fragments pottery (20,882); shell (20,883).

Wellsburg (Ohio Valley).—Pitted stone (20,884); hammer-stone (20,885); two partly worked pebbles (20,886); celt, hafted by the depositor (20,912).

UNITED STATES (MISCELLANEOUS).

NEW MEXICO.

Mr. Carl Edelheim has presented 83 specimens of modern Pueblo pottery (20,178–260), from Acoma and Laguna, comprising miniature bowls, cups, paint cups, jars, pitchers, baskets, candlesticks, canteens, and spoons, and Mrs. Thomas A. Scott, 29 similar specimens (20,318–346) from Tesuque, Laguna, Acoma, and Santa Clara. Mrs. Scott has also presented a large water jar from Zufi (20,352); five jars (20,347–351) from the ruins of Pajero Pinta, 36 miles north of Santa Fé; a head dress (20,363) used in the “rain dance” from Santo Domingo; a Pueblo bow drill (20,364) with chalcedony point; a miniature Navajo loom (20,365); Navajo Indian saddle (20,366); bow, bow case, quiver, and arrows (20,367) of the Jicarilla Apache and three hafted stone axes and hammers (20,368–370), probably Tewan, one of which (20,368) was made, according to Mr. Cushing, for use in dances.

PENNSYLVANIA.

The Rev. W. Boyd, of Lansdowne, Pa., has presented a flattened stone tube (20,507), 5 inches in length, from Wallace township,

Chester County, Pa. (John Patterson's farm). Mr. E. T. Mack, of Nazareth, has presented a rubbing stone (20,505) and two arrow heads (20,504) from the vicinity of that town.

WYOMING.

Provost Charles C. Harrison has presented a catlinite pipe with stem (20,417) and beaded tobacco pouch (20,418), given to him by the Rev. Frederick H. Post, of Perth Amboy, N. J., to whom they were presented by Washakie, an old chief of the Shoshoni. Upon inquiring of Mr. Post for additional particulars concerning the pipe, he kindly stated that it had been sent to him in 1887 or 1888 by Washakie, through his brother, who resided for several years at Fort Washakie, Wyoming; an "eagle-wing fan" (20,497) accompanied the original gift, and this Mr. Post presented to the Museum.

After examination, Mr. Cushing states that "the fan is a true war fan. It differs from the ordinary war fan in being made not only from the right wing, but also from the neck skin and breast covers of a 'man' eagle, so as to make, as well as symbolize, the wind or breath of destruction or victory wherewith to fan the fire by which the pipe is lighted at a council of war. It should belong to the keeper of the tribal pipe, but is not an integral part of the calumet pipe unless in exceptional cases. In the absence of specific information regarding this particular example, I cannot add much more than to say that the beaded decorations, though modern, replace more ancient and highly significant forms. The plant figures should represent the tobacco flower of fire, for three black-tipped 'plumes of smoke' issue from it, while at either side are the shields of the flower, symbolic of protection. The medicine bag attached below is the turtle, also a defensive amulet; and the straight diagonally banded line at the back is the wind and 'straight trail' of life, so much referred to by Miss Fletcher."

MEXICO.

Mrs. William H. Miller has presented a pair of cut leather saddle cloths (20,157), a pair of leather breeches (20,158) worn by Dr. Charles Lukens in Mexico prior to 1820, and a beaded sash (20,159) of Indian manufacture.

CENTRAL AMERICA.

NICARAGUA.

Mr. Octavio A. Gamez, M. D. 1900, has presented a *molenillo* (20,927) used for stirring chocolate.

SOUTH AMERICA.

ARGENTINE.

Fragments of terra-cotta (20,297), and spindle-wheel (20,298), work of the Comechingones, the oldest inhabitants of the Province of Cordoba, found with rough flint arrow points at Olain, department of Punilla, Cordoba, 1895, have been presented by Prof. H. H. Giglioli.

BOLIVIA.

Dr. Thomas G. Morton has presented photographs (20,426-27) of an ancient silver image, $8\frac{3}{8}$ inches in height, representing a nude woman, with hair in double braids down back. This image, now in Dr. Morton's possession, was presented to his father, Dr. Samuel G. Morton, by Dr. Wm. A. Foster, in 1840, and is said to have been found in the ruins on an island in Lake Titicaca.

BRAZIL.

Prof. H. H. Giglioli has presented a cast of a remarkable stone axe (20,299) in the Sienna Museum, "described as Italian, but evidently from N. Brazil" (H. H. G.).

CHILI.

Prof. H. H. Giglioli has presented the following casts of rare archæological specimens in the Museo Nacional, Santiago, obtained from Prof. R. A. Philippi: Two stone labrets found at Freirina (20,300) and Coquimbo (20,301), three pipes, *cachimba*, (10,302-304), Valdivia; pan flute (20,305), Valdivia; copper mace-head (20,306), N. Chili; stone club-head (20,307), and three singular stone objects, worked fossil teeth (20,300-311), Colchagua.

ECUADOR.

Necklace of red, white, and black seeds in ornamental pattern, Zaparo Indians, Napo River (20,296), have been presented by Prof. H. H. Giglioli.

PARAGUAY.

A small netted bag (20,295) of the Angaité Indians, Chaco Boreal, has been presented by Prof. H. H. Giglioli.

POLYNESIA.

The following objects have been presented by Prof. Henry H. Giglioli :

NEW ZEALAND.

First stage of *toki*, stone adze (20,280); first stage of small *toki*, stone adze (20,281); first stage of *paneka*, stone chisel (20,282); *pouwhatu*, quartzite hammer-stone (20,283); *pouwhatu-kokowai*, to grind hæmatite (20,284), from old *pah* Wharau wera wera; *hoanga*, a grindstone (20,285), for sharpening stone implements and in working nephrite, held between the feet; four *hoanga* stones (20,286), used to polish nephrite; three *mania*, stone rubbers or cutters (20,287), used in working nephrite; *kokowai*, hæmatite (20,288), used by the Maoris as paint, war-paint, and to keep warm; from old *pah* near Otago; five chips of green quartzite (20,289) from ancient workshop of stone implements at Riverton. All collected by F. C. and F. R. Chapman at Riverton and Wareakeake, Otago (see Trans. N. Z. Institute, XXIV, 498 Wellington, 1890).

OTAHEITE (TAHITI).

Piece of white tappa cloth (20,279), of the best kind, collected during Captain Cook's third voyage, 1777.

MELANESIA.

The following objects have been presented by Prof. Henry H. Giglioli :

FIJI.

Large glazed terra cotta jar (20,266), Viti Levu.

NEW CALEDONIA.

Seven toy spears (20,265), made for the chief's son, Balade. Collected in 1892 by a French missionary.

NEW GUINEA.

Woman's net bag (20,267), Taraway, Gilbert Island ; fine small mat (20,268), Merat or Djamma, Tabi Island ; pan flute, single series of reeds (20,269), Duau, Normanby Island ; coconut spoon (20,270), Roro, Yule Island, southern coast ; two net bags (20,271), made by the women on the coast and island in Papuan Gulf, from the villages of Wailala and Kerema ; collected by Ch. Kowald, June, 1895. Grass petticoat of young woman (20,272), Guap, Schouten Islands ; collected 1885. Grass petticoat of young girl (20,273), Milne Bay ; collected 1890. Man's dress in two pieces of plain and two of colored bark cloth (20,413), Collingwood Bay.

SOLOMON ISLANDS.

Drinking gourd (20,261), Rubiana ; banana leaf kite with tackle and spider-web bait, for fishing pike-fish (20,262), Belone, Rubiana 1892 (cf. Partingdon, *Ethno. Album* Pl. 197, Fig I, Manchester, 1890) ; pan flute (20,263), reeds in double series, Buka, R. Parkinson, 1895 ; fine flat mat-bag (20,264), Buka, R. Parkinson, 1895.

AUSTRALIA.

Mrs. W. H. Miller has presented a necklace (13,542) of the lower canine teeth of two species of the kangaroo, and Prof. Henry H. Giglioli the following objects :

Miro, club (20,274) of Kungaburra tribe, N. E. Queensland, length 29 inches ; humming top (20,275), gourd with four perforations with spindle cemented with gum, height $6\frac{1}{2}$ inches, spun on an old blanket or clear track, Queeariburra tribe, near Cairns, N. E. Queensland, collected by Bellenden Ker (V. *Journal Anthop. Inst.*, Vol. XXV, No. 3, p. 259) ; cast of *tea* or *buba*, huge stone axe (20,276) of Gengaji, N. E. Queensland, from an unique specimen in the Australian Museum, Sidney ;

quartzite hammer-stone (20,277), Wattagoona, New South Wales, E. P. Ramsay, 1889; *yelltra*, stone slab for grinding nardoo seed (20,278), Wattagoona, New South Wales.

ASIA.

THE FAR EAST.

CHINA.

The Hon. Mayer Sulzberger has presented a book of pith paper pictures (20,423) of women playing on musical instruments; Miss Mary Ausley, an ivory cube puzzle (20,432) and an ivory bar with cord and rings puzzle (20,431) from Canton. Messrs. George and J. Edward Farnum have given a terminal tile (20,469) and a hip tile (20,468), surmounted with a lion, of yellow glazed pottery from the Yellow Temple at Peking.

JAPAN.

Mr. Edwin Swift Balch has presented a modern Japanese sword (20,925) mounted as a cane in a bark scabbard, and Messrs. George and J. Edward Farnum, two *makimono* or roll pictures (20,470-71.)

KOREA.

Messrs. George and J. Edward Farnum have presented an enamelled silver ear pick (20,500) and a pin (20,501) from Southern Korea.

THIBET.

Messrs. George and Edward Farnum have given a bundle of Lhassan incense (20,443) presented to them by the acting chief priest of Lama Miao (Dolonnor,) S. E. Mongolia. The bundle is octagonal, wrapped with a red and yellow cord, and was originally about 30 inches in length, having been broken in half in order to transport it. Large quantities of this incense are sent each year by the chief priest at Lhassa to this temple.

INDIA.

Professor H. H. Giglioli has presented five *fac similes* of the footprints of Krishna (20,294) sold as amulets to the faithful during the festivities of Jagannath at Puri, South India.

ISLAND ASIA.

NICOBAR ISLANDS.

A woman's dress (20,292) *hinong-lama-ok*, made of grass. Collected by E. H. Man, 1895, and a pair of cocoanuts, *hishoya*, (20,293), used as water holders in the central islands of the Nicobar group, from Great Nicobar, collected by M. Man in 1890, have been presented by Professor H. H. Giglioli.

AFRICA.

ABYSSINIA.

Mrs. Lucy Wharton Drexel has presented a charm (20,502) against evil eye made of two tusks of a boar united to form a crescent, used on the harness of animals, and a pair of phylacteries (20,503), collected by her in Abyssinia.

CAPETOWN.

The following Kaffir and Zulu objects have been obtained by purchase through Mr. F. Kulka: tobacco pipe, wood (20,371); tobacco pipe, antelope horn, reed stem, steatite bowl (20,384); tobacco and food bag (20,386); snuff boxes (20,372, 20,375); snuff spoon (20,378); calabash dipper (20,382); gourd vessel for beer (20,383); anklet (20,376); bangles, four (20,379-81); bead necklace (20,377); bead belt (20,380); girdle fringe (20,391); necklace, imitation lion claws (20,387); capsule (20,385); fly whisk (20,388); pillow (20,374); knob kerie (20,373); doctor's necklace of antelope horns (20,389); marimba (20,390).

Mrs. Charles F. Thomas has presented a wooden image or idol (20,424), an erect human figure, 7½ inches in height, with wrists tied across behind back.

Mr. Edwin Swift Balch has presented a Fan dagger (20,924).

EUROPE.

ITALY.

Professor H. H. Giglioli has presented a cast of a jade axe (20,312) found at Udine (Venice) from original in his collection, and a fragment of vase (20,313) found with rude flint implements at Colle Galletti, near Chieti, Central Italy.

SPECIAL COLLECTIONS.

American History. Mrs. W. H. Miller has presented a sabre (20,316) which belonged to Lieutenant-Colonel McPherson, who commanded the Forty-Second Regiment of British and German troops at the descent on Paramus, N. J., March 24, 1780.

Mr. Charles Laubach, of Riegelsville, has deposited an engraved military powder-horn (20,482), originally belonging to Anthony Lerch, Sen., a private in Captain Christian Laubach's company of Saucon Rangers, serving during the Indian troubles in Pennsylvania in 1755-62. Miss Annie Lerch, daughter of Anthony Lerch, Jr., married John Kneight, of Durham, Pa., and brought the powder-horn to her home as a keepsake, where it remained in the garret until the decease of her son David, in 1891, when it was bought with a lot of other colonial relics by the present depositor.

Mr. Thomas J. Collins, of Haddonfield, N. J., has deposited the inkstand, sand-box, warming pan, and cane (20,516-19) of Jonas Cattell, the whipper-in of the Gloucester Fox-Hunting Club.

Fans. Mrs. Lucy Wharton Drexel has made the following additions to her collection : wooden fan painted with costumes and arms of the Swiss cantons (20,155) ; drawing by Sir Thomas Lawrence (20,156) ; Mexican—bull fighters and street scene (20,475) ; French—gilded pearl sticks, 19th century (20,476) ; Japanese—painted silk (20,479) ; Canton, China—carved sandal-wood sticks, and scenes from Chinese theatre (20,487) ; vellum fan, portrait and autograph of Joseph Jefferson, painted by William F. Kline (20,488) ; vellum fan, the Jungfrau, from

Interlaken, painted by Bierstadt (20,917); French—carved ivory sticks (20,918); three palmetto fans, Florida (20,919).

Mr. Robert O. Babbitt has presented a French fan (20,477) with gilded ivory sticks, 19th century.

Fire-making and Lighting.—Mr. Stacey Clarke, of New York City, has presented an ancient brass candlestick (20,154) from a church in Bruges; Mrs. Jacob H. Lazarus, a brass candlestick, Prussian (20,169), brass candlestick, Pompeiian (20,170), brass sconce dated 1755 (20,171), U. S. colonial candlestick (20,172), and a pair of antique brass candlesticks from Quebec (20,419), and Mr. Richard H. Day a package of tinder-box flints (20,173). These flints, which were purchased by the donor in an old shop on Second street, Philadelphia, in 1897, are regarded by him from their light color as probably manufactured on the continent, the Kentish flints being dark. They were imported in casks and repacked in Philadelphia. Mr. Day has also given a lard oil lamp (20,174) and a fluid lamp (20,175) from the garret of Sylvester Coulston, a blacksmith of Germantown, Philadelphia, and two pairs of brass snuffers (20,921).

Mr. W. F. Witte, of Springtown, Bucks Co., Pa., has deposited an antique lard lamp (20,429), the can (20,430) accompanying it used for melting the fat, and a pair of antique steel snuffers (20,926).

Col. Henry D. Paxson has given small pottery lamp (20,472) called *sofiayde* or "virgin lamp," used at the present day throughout Syria and Palestine for the purpose of illuminations, sometimes in long rows on the house-tops, in houses, churches, and on graves of Mohammedans at night. Olive oil is burned in it, and a wick of twisted cotton cloth. A small stick about the size of a match goes with each lamp to shape the wick. Col. Paxson has also given two antique fluid lamps of Britannia ware, one (20,491) of the acorn pattern, the other (20,402) a socket lamp intended to be inserted in a candlestick. Also an old match-box (20,493). The above were purchased by the donor at an old store on Calowhill street, Philadelphia.

Mr. Charles Laubach has presented an old iron candlestick (20,481), and Mrs. Mary Potter, of Bethlehem, a glass fluid lamp (20,483).

Mr. Charles Laubach has presented four iron stove plates: Side plate, 26x28 inches, 1756, described below (20,133). Side plate, with orifice for door, 26x32½ inches; "R. Backhouse, Durham, 1785" (20,135). Side plate, with door, 26x35 inches; "Valentine Eckert, Sally Ann Furnace, E Pluribus Unum" (20,132). End plate, 15x26 inches; decorated with vase, with tulips; no inscription or date (20,134).

In a communication accompanying the gift, read at a meeting of the Numismatic and Antiquarian Society of Philadelphia, October 7, 1897, he says:

"Iron stoves were unknown before 1678, when Prince Rupert, of England, attempted to convert a fireplace into a furnace. This was the first attempt to force smoke back over the fire and create heat for warming apartments by the aid of iron. Early in the eighteenth century, about 1710, Count Polignac, of France, made an attempt to convert an ordinary fireplace into a heating apparatus by simply constructing a fireplace with an iron back, hearth, and jambs. The result was only a slight saving of heat. In 1716 Dr. Desaugliers, of London, succeeded in improving the Polignac fireplace so that it could be used for burning coal.

"The first attempt at manufacturing heating apparatus at Durham, Pa., was in 1741, by the Durham Furnace Company. The firm consisted of George Taylor (later one of the signers of the Declaration of Independence), James Logan and James Morgan, ironmasters (the latter being the father of General Daniel Morgan, the hero of Cowpens).

"The 1741, stove pattern was called the 'Adam and Eve,' from its embellishment. It was in the form of a box, two feet square, without side or oven doors, having merely one door in front to supply it with fuel and draft, and a hole on top to allow the escape of smoke. The stove was designed by its inventor to instruct as well as to supply comfort, having inscribed, in raised characters, the date 1741, surrounded with fine scroll work. Above this were raised figures representing Adam and Eve, the serpent, several fruit trees, and a variety of animals in the background. In 1745 Franklin invented the famous stove which bears his name. This pattern

continued to be cast at the Durham Furnace until 1774, and probably later.

"In 1756, when the furnace was leased and operated by Captain Flowers and James Morgan, a new design of stove was invented by the firm and cast at the furnace. The side plates were highly embellished with scroll work and the following inscription:

" 'DIS. IST. DAS. JAHR. DA.

1756.'

"In 1774, when George Taylor, Samuel Williams and James Morgan were members of the firm operating the Durham Furnace, a new model of a stove was constructed with the inscription: 'Durham Furnace, 1774.' This was surrounded by a wealth of fine scroll work. A portion of a stove with the above inscription and the date thereon was for many years placed in a conspicuous position in front of the Easton, Pa., post-office.

"In 1779 Richard Backhouse became proprietor of the Durham Iron Works. During the Revolution he supplied Washington's army with shot, cannon-balls, canister, and grape. At the close of the war he commenced the manufacture of stills, steel wagon springs, stoves and stovepipes, in addition to pig and bar iron. In 1785 he invented an improved ten-plate stove, constructed with stovepipe attachment, as at that time stovepipe was considered a luxury. In 1789 the Valentine Eckert pattern stove was largely cast here and at the Sally Ann Furnace, near Allentown, Pa. Captain Valentine Eckert, of Revolutionary fame, had in the year 1789 a neat model of a stove constructed, which was largely cast at Durham and at the Allentown and Reading Furnace. The stove bore the inscription, 'Valentine Eckert, Sally Ann Furnace,' scroll work and the American eagle carrying the motto, 'E Pluribus Unum,' in its mouth. It is curious to note, according to the Durham Furnace ledgers, that the various stove patterns—Adam and Eve, 1741; Franklin, 1745; Philadelphia, 1755; Captain Flowers and Morgan, 1756; George Taylor, 1774; Mount Pleasant, 1780; Richard Backhouse, 1785; Captain Eckert, 1789, and Pettibone, 1791—were frequently exchanged

among the various furnaces and forges in Pennsylvania and New Jersey, and cast at designated furnaces to supply the needs and tastes of the inhabitants of the surrounding regions."

Games.—Professor H. H. Giglioli has presented an old wooden board (20,291) in two parts for the game of *Gabuttá* (Mancala), collected by General L. Bisesti in Adigrat in Tigré, N. Abyssinia, May, 1896. This specimen was the property of Res Sebat, one of the rebel chiefs. This board is identical with that figured by Bent (*Sacred City of the Ethiopians*), and reproduced by Culin (*Mancala, the National Game of Africa*). Reprt. U. S. N. M., 1894.

Mr. M. F. Lobo has presented an old wooden board (20,152) for the game of *warry* (Mancala) from Barbados, W. I.

This board, made of a plank $2\frac{1}{4}$ inches thick, 6 inches wide, and 20 inches in length, has two rows each of six hemispheric holes. The collector, E. S. Daniels, of Barbados, gives the following account of the play :

"This game is played by two persons with forty-eight counters (generally round). At starting, the first player, who has been agreed upon, places a counter in each pocket in rotation, going from left to right, until his twenty-four counters are exhausted. There are then two counters in each pocket. The second player proceeds in the same manner, making four counters in each pocket. The first player now takes the four counters from any of the four pockets nearest the right side of his board, and places one of them in each of four successive holes, commencing with the one immediately next the one from which he took the counters and ending on his opponent's side. The second player does likewise, and the game proceeds in the same manner, the players choosing the pocket from which they start. If at any play a counter falling on the opponent's side makes two or three, it wins them, or if a play end in a pocket with one or two in it, thus completing two or three, these can also be taken, as well as any that may come before this hole in succession, provided always that there are two or three in each of them. Four, called a 'house,' cannot be taken. The game is decided by winning the greater number of counters.

"Players must always end their first move on the opponent's side, but afterward this is optional.

"Players can only capture counters on the opponent's side.

"If two or one remain on either side at the close of a game, it is a draw.

"Counters must be played one at a time, and one in each hole.

"The game is supposed to have been introduced many years ago by some African soldiers who were enlisted in one of the West India regiments. The game here is chiefly played by the porters and boatmen on the wharf. It is said to be very intricate."

It would appear from a reference in Bent's *Ruined Cities of Mashonaland* that the name in Barbados, *warry* (wari), was one common on the west coast of Africa.

Mr. Thos. F. Dozier, of Santa Clara, N. M., has presented a set of staves (20,153) for the Tewan game of *Tugt-e-pfe* (Spanish, *Pastore*) as played at Santa Clara. One staff of this set, having notches and crossed marks, is represented in Plate 10, B.

A set of beaver teeth (20,930), Plate 9, C, used in gaming by the Indians of Washington, have been obtained by purchase through the kindness of the Rev. Myron Eells.

Mr. George E. Starr has presented a set of implements (20,575) for the bowl game of the Tobique (Micmac) Indians of New Brunswick. It consists of a wooden platter 10½ inches in diameter, six bone disks marked with red on one side, and counting sticks, comprising fifty plain and five larger carved sticks.

A set of implements (20,951) for the bowl game of the Penobscot Indians of Maine, Plate 11, B, have been obtained by purchase through Mr. Cushing.

The United States Playing Card Company, of Cincinnati, Ohio, has presented one hundred and fifty sample packs illustrating all varieties and qualities of playing cards manufactured by them, together with five sample books of their playing cards.

Mr. Charles J. Wood has presented a pack of French fortune-

telling cards (20,137), *Jeu de Cartes Oracles*, David, Paris, purchased on the Boulevard, in Paris, 1897.

Mr. Clarence B. Moore has presented four pottery checkers (?) (20,160-62), from Beaufort Co., S. C., and the Georgia coast.

Numismatics.—The following important additions have been made to the collection of gold and silver coins recently deposited in the Museum :

Gold : \$2.50, 1833 ; \$10, 1849.

\$20, 1861, Clark Gruber & Co., Denver, Col.

Silver : Quarter dollar, 1796. Two varieties, one proof showing file marks on bust.

The Rev. Charles J. Wood has presented U. S. copper cents of 1846 and 1797 (20,163-4).

There are practically no copper pieces in the Museum's series of United States coins, and it is desired to complete the series.

Mr. Curwen Stoddard has presented a one-shilling note (20,177) of the Hudson's Bay Company, 1846, and Mr. Victor D. Brenner, of New York City, his bronze medal of Chauncey M. Depew (20,435) and his silver medal of Nansen (20,434).

LIBRARY.

The following are among the most important acquisitions since the last issue of the BULLETIN :

Compte-Rendus of the Imperial Russian Archæological Commission, 4 vols., 1893 to 1896.

Matériaux pour servir à l' Archæologie de la Russia, publiés par la Commission Impériale Archéologique, Nos. 13-20. Eight vols., 1893 to 1896.

Gifts of the *Imperial Russian Archæological Commission*.

Memoirs of the Historical and Antiquarian Society of Odessa, Russia : Vol. II, 1850 ; Vol. III, 1852 ; Vol. IV, 1858-1860 ; Vol. V, 1863 ; Vol. VI, 1867 ; Vol. VII, 1868-1872 ; Vol. VIII, 1872 ; Vol. IX, 1875 ; Vol. X, 1877 ; Vol. XI, 1879 ; Vol. XII, 1881 ; Vol. XIII, 1883 ; Vol. XIV, 1888 ; Vol. XV, 1889 ; Vol. XVI, 1893 ; Vol. XVII, 1894 ; Vol. XVIII, 1895 ; Vol. XIX, 1896.

Gift of the *Society*.

Antiquarisk Tidskrift för Sverige, Vols. II–XVI, 1869, 1895.

Kongl. Vitterhets Historie och Antiquitets Akademiens Månadsblad, Nos. 16–22, 1887–1893.

Gifts of the *Royal Academy of Belles-Lettres, History and Antiquities of Stockholm*.

Pérou et Bolivia par Charles Wiener. Paris, 1880.

By Purchase.

PUBLICATIONS.

The Department of Archæology and Palæontology has just published, through the liberality of Eckley B. Coxe, Jr., Esq., another volume of the series of the Babylonian Expedition of the University of Pennsylvania; Series A: Cuneiform Texts edited by H. V. Hilprecht. This volume (IX), pp. 90, Plates 72, xx, quarto, consists of "Business documents of Murashû Sons of Nippur, dated in the reign of Artaxerxes I (464–424 B. C.)," by Prof. H. V. Hilprecht and the Rev. A. T. Clay.

The price of the work is \$6.00.

EXCHANGES.

An exchange of publications has been made with the following societies and institutions since the last issue:

Historical and Antiquarian Society of Odessa, Russia.

Royal Academy of Belles-Lettres, History and Antiquities of Stockholm.

LECTURES.

The following lectures, with demonstrations by means of objects in the Museum, have been delivered in the American Hall on Wednesday afternoons at 4 o'clock.

January 5th. Mr. Frank Hamilton Cushing,* "Gorgetts, Bird- and Banner-Stones," Pipes and Calumets.

January 12th. Dr. Daniel G. Brinton, "How to Study Stone Implements."

* In consequence of Mr. Cushing's illness, his notes and illustrations were presented by Mr. Culin.

January 19th. Dr. Max Uhle, "The Peruvian Mummy."

January 26th. Mr. Stewart Culin, "Lights and Lighting."

February 2d. Dr. Daniel G. Brinton, "Primitive Uses of Bone."

February 9th. Prof. Amos P. Brown, "Jade and Green Stones in Asia and America."

February 16th. Mr. Stewart Culin, "Charms and Amulets."

February 23d. Dr. John W. Harshberger, "The Use of Plants Among the Ancient Peruvians."

March 2d. Mrs. Talcott Williams, "Tattooing in Morocco."

March 9th. Dr. Daniel G. Brinton, "European Archæology."

March 16th. Mr. Stewart Culin, "Engraved Powder Horns."

March 23d. Mr. A. E. Outerbridge, Jr., "Curiosities of American Coinage."

March 30th. Dr. Max Uhle, "Coca and Tobacco in South America."

April 6th. Mr. Stewart Culin, "Fraudulent and Counterfeit Antiquities." *

April 13th. Mr. H. Kent Day, "Monumental Brasses."

* Postponed until next season.

JADE AND SIMILAR GREEN STONES.¹

BY PROF. AMOS P. BROWN.

THE name jade may be properly applied to several mineral species, all of which have a more or less greenish color, are as hard or harder than steel, and possess a compact and tough texture. The name is also sometimes improperly extended to include other greenish stones of the same general appearance, notably several varieties of serpentine. The stones now called jade were formerly grouped under the head of jasper and were included with the green jaspers. The names jade and lapis nephriticus, both of which were used to designate these stones by the older mineralogists, came into use about three hundred years ago. Agricola,² in his *De Natura Fossilium*, does not make use of either term, although he undoubtedly alludes to jade under "jasper" when he describes a variety which in color "is like to gray fat, or greenish, sprinkled with milky," or again as "like gray-green fat (*glauco pingui similis*)"; both of which descriptions almost certainly allude to Oriental jade, and particularly so as he describes the mineral as coming from "India." Conrad Gesner³ (1566) does not use the names jade or lapis nephriticus, although he probably alludes to jade under the greenish "jaspers," which he states are particularly valuable for amulets, and as cures for certain kinds of sickness.

Aldrovandus⁴ (1642) speaks of the stone under the name of "lapis nephriticus, commonly called Isiada or Osiada, from ischiada or sciatica, and therefore called by the Spanish *pie dra de la yjada*." It seems probable that the name "jade" was first used for the American mineral, and that it is derived from the Spanish as above, the Spaniards being the first to bring

¹A lecture delivered in the Museum of Science and Art, University of Pennsylvania, February 9th, 1898.

²Georgius Agricola. *De Natura Fossilium*. Basel, 1546.

³Conrad Gesner. *De Omne Rerum Fossilium genere, Gemmis, Lapidibus, etc.*, 1566.

⁴Ulysses Aldrovandus. *Musei metallici*. Bologna, 1642.

American jade to Europe. Thus Caesius¹ (1686) speaks of jade as "lapis nephriticus, which was brought a few years ago from New Spain, it is a greenish stone, mixed with milky," etc.

At the time of the publication of Haüy's² *Mineralogy*, two species of jade were distinguished, which he calls *jade nephritique* and *jade de Saussure*. The first of these includes the present species nephrite and jadeite; the second is the so-called saussurite. Haüy expressly excludes serpentine from the jades, and this distinction seems to date from early times. Our present name nephrite was adopted by Werner in 1780, and the mineral jadeite was separated from nephrite on chemical grounds in 1863, this new name being proposed by Damour. Jade proper may be either nephrite or jadeite, but saussurite has often been called jade and is, for example, the "jade" of the Swiss lake dwellers in large part.

Nephrite is a silicate of calcium and magnesium, of the composition of the minerals called tremolite and actinolite. It is generally light colored, yellowish to grayish green, the color depending upon a small percentage of iron, which is higher in the darker varieties or those which approach the composition of actinolite. It is harder than steel and has a specific gravity of about 3. The structure of nephrite can only be made out when it is examined with a microscope. When seen in section, in polarized light, the mineral shows a felted mass of fibres, interlacing in every direction, looking much as the compact massive tremolite or asbestos appears to the naked eye.

Jadeite is a silicate of sodium and aluminium, also containing a little iron which gives it a greenish color. In hardness and structure it is, as a rule, precisely similar to nephrite, but has a somewhat higher specific gravity, being about 3.5. It may be distinguished from nephrite by chemical analysis or by its behavior toward polarized light. Of the two, nephrite is much more common and more widely distributed. Saussurite, the third mineral known as jade, is a mixture, being mainly feldspar, which by alteration has become penetrated by other minerals

¹ Bernardus Caesius. *Mineralogia, Sive Naturalis Philosophiae Thesauri*. 1686.

² *Traité de Mineralogie* par le Cen. Haüy. Paris, 1801.

such as zoisite, epidote, hornblende, etc. In hardness it resembles the other jades, being harder than steel; its specific gravity is above 3. Its structure, as seen with the microscope, is very different from that of the other two, being entirely granular, and not a felted mass of crystals. The original saussurite was obtained from the vicinity of Lake Geneva by the elder De Saussure. Haüy distinguishes between the lustre of the polished *jade nephritique* and *jade de Saussure*; the former he calls greasy, the latter he states takes a perfect polish; and it is to be noted that nephrite and jadeite when polished do generally show a greasy lustre. These latter stones when of a strong green color often show irregular spots of white or a lighter green, and even the dull greenish gray specimens of nephrite and jadeite generally have a mottled appearance. Saussurite does not show this mottling as a rule. Owing to their structure, nephrite and jadeite are admirably adapted for making cutting instruments, but saussurite is more brittle, and while it would take a good edge, would readily chip.

The serpentines which could be mistaken for jade are all softer than steel, but otherwise closely resemble jade in color, lustre, and texture. The microscopic structure of serpentine is very close to that of jade. The precious serpentine is generally quite soft; the harder compact varieties that resemble jade are grouped under the name of bowenite. The original bowenite came from Connecticut and was discovered in 1850 by Bowen, who described it as *nephrite*; but it was subsequently shown to be a variety of serpentine and was named after the discoverer. A specimen of Chinese "jade" in the University Mineralogical Museum, brought from China and presented by Mr. Benj. Smith Lyman, proves on analysis to be bowenite. These hard serpentines were generally distinguished from jade by the earlier naturalists, at least so far as we can determine, and they should not, I think, be confounded with jade proper; for although it may have happened that primitive peoples have used either indifferently in certain cases, it is highly probable that they generally recognized a distinction. While jade implements are very plentifully found among many aborigines, worked serpentine that could be confounded with jade is rare.

As already noted, jade was brought to Europe by the Spanish conquerors of Central America and Mexico. Spain itself is set down as a source of jade, probably from its distribution thence over Europe. With the exception of the jade reported from the Jade Mountains of Alaska by Stoney & Clarke,¹ the jade-bearing rocks of America have not yet been discovered. The source from which it is usually obtained from aboriginal people (as illustrated by the specimens from Costa Rica, exhibited in the Museum for example) was the rolled pebbles of the streams and gravel deposits. This source is no doubt that from which the Mexican and Alaskan jade was obtained by the natives, and the same is equally true of the jade from Eastern Siberia. Jade is found *in situ* in parts of Western Turkestan and Eastern Burma, where it is worked by building fires against the cliffs, an extremely precarious method of mining, and attended by very high mortality. Parts of Persia and other localities in Southern Asia furnish jade, and in several islands of the Pacific, notably in New Zealand, jade is obtained. In New Zealand the jade is *in situ*, occurring in the mountains of the southern island. The jade sometimes used in jewelry is generally classified as "Oriental," or Chinese jade, and "Oceanic," or New Zealand jade.

Among primitive peoples the uses of jade are various. Its peculiar toughness and hardness adapt it for use as a cutting tool, as the celt and its various modifications—the chisel, the adze, etc.; but no doubt on account of some especial virtue assigned to it, such jade implements were often ceremonial only. Serpentine was occasionally used in the same way. Jade was also commonly used for ornament, as among the New Zealanders, for example, where carved jades representing the human figure were formerly largely worn. Probably from this use for ornaments arose its employment as a material for amulets, which is quite universal over Southern Asia, and was alluded to by the early writers, who included jade under jasper. Thus we find in Gesner that amulets of green "jasper," mottled with white, were reputed to have extraordinary powers in pro-

¹ Clarke & Merrill. *Proc. U. S. Nat. Mus.*, 1888, Vol. XI, p. 115, *et. seq.*

tecting the wearer from death by poisoning, and he states that this use was universal throughout the East. Even in the time of Pliny this use seems to have been common.

The "medicinal" use of jade in Europe for the cure of sciatica and kidney troubles seems to date from about 1600, and apparently American jade was regarded as most efficacious. Indeed, we find it stated that this use of the stone was taught to the Spanish by the Indians of Central America and Mexico, and was communicated by the Spanish to the rest of Europe. Amulets of "green jasper," probably jade in part, had been in use in early times for the cure of sickness, and are recommended by Galen for indigestion and other stomach troubles. As a "medicine" the jades were cut into various shapes, especially long pendants, "beaks of birds," and were worn suspended by a ribbon about the neck. They seem to have been in common use in Europe and this country less than a century ago.

The working of jade into the forms in which we find it, probably presented considerable difficulty to aboriginal people, owing to its hardness and toughness. It would appear that it had to be worn into shape by rubbing rather than by pecking. The means employed by the New Zealanders are represented by the specimens of jade-working tools in the Museum. These comprise sandstone blocks to be held between the feet, on which the rough shaping is effected by rubbing the object on the sandstone; and various softer and finer stones for shaping the designs and polishing. The cutting, as practiced by the Costa Rica natives, was probably effected in the same way, no evidence of pecking appearing on the specimens, while rubbing and grinding marks are plentiful. The well-known Chinese jade carvings show the material cut into elaborate and intricate designs only equaled by the ivory carving of the same people. These Chinese jade carvings are highly prized. Excellent examples of them are to be seen in the Sommerville collection of engraved gems in the Museum.

Jade being such a valuable material, was naturally imitated. The Chinese have numerous glass imitations, and their gray celadon bowls were doubtless intended as copies of jade vessels.

The use of serpentine for ceremonial implements may perhaps be considered as an imitation of jade implements.

The Costa Rica collection now displayed in the Museum is probably the best assemblage of worked jade ever brought together. It consists (as pointed out by Mr. Cushing) of various modifications of the axe or celt, this being shown entire or more often halved by being cut in two down the centre, or even quartered by again dividing the half along its length by a second cut at right angles to the first. This cutting has evidently been done by a cord, probably in a bow, with some quartz sand as the cutting agent. Each of these halved axes shows a central line of fracture running the length of the blade, showing that it was sawed from opposite sides nearly to the middle and then broken. This side of the halved axe is not polished and the central broken section seems to have been purposely retained. A pebble in the collection which has two partly-worked cuts indicates the source from which the material was obtained, as well as the method of working it. Some of the forms in this collection represent the double-bladed axe, and many are carved and ornamented by representations of the human figure. Most of them are perforated by one or two holes, for suspension about the neck probably. Other materials besides jade are represented, as a light greenish anorthosite, which has much the physical character of saussurite. Among these jades the colors range from light greenish to darker green or bluish green, mottled with white, or clear green; the darker shades run into grays and almost to black. While analysis of Mexican and Central American jades show both nephrite and jadeite, the specimens in this collection which were examined were found to be jadeite.

THE USES OF PLANTS AMONG THE ANCIENT PERUVIANS.¹

BY JOHN W. HARSHBERGER.

The spade of the archæologist, in laying bare the ruined edifices and temples in various lands, has opened up a vast field of inquiry to students in all departments of science. The antiquarian is interested in the customs and habits of prehistoric peoples; the architect finds much to instruct him in the buildings of antiquity; the zoologist and ethnologist, much in the animal and the human remains; the botanist, in the plant remains; and the metallurgist, in the tools and implements of the primitive workmen. No department of science has been so enriched, as the botanical. The discovery of plant remains in the graves, sepulchres, and temples has thrown a flood of light on the origin of many of our most useful and most generally cultivated plants. The deductions regarding the early geographical habitat of a species, as drawn from archæology, must be corroborated by history, paleontology, philology, and botany. All of these sciences are essential to an ethno-botanical research. The identification of vegetable remains, especially of woods, is an extremely difficult one. The student should be extremely careful in such identifications, because time and weather have obliterated many of the characters upon which a botanist depends for the recognition of species, such as color, pubescence, and form. The aboriginal races, in constructing various utensils of wood, fibre, or bone, have so modified the raw material as to make it almost impossible to determine botanically its source. With these preliminary remarks, I wish to draw attention to the use of plants among the ancient Peruvians.

MAIZE (*Zea Mays*).—Maize is a native of the highlands of Mexico, where it grows wild in the form of a closely related plant, *Euchlæna mexicana*, called Teosinte or Café de Tabasco. The proof of this origin lies in the widespread use of the plant

¹ A lecture delivered in the Museum of Science and Art, University of Pennsylvania, February 23d, 1898.

throughout Mexico, and in a philological comparison of the names for maize in the various Indian languages. The plant can be hybridized with teosinthe, showing its relationship, if not its specific identity, with that plant. Originally kernels of maize were small and sharp-pointed, and the ears narrow and short. Upon comparing the Peruvian ears and kernels, of a rich chocolate-brown color through exposure to the atmosphere, we find that they are large; the grains, although sharp-pointed, are much fuller and larger than the (wild) Mexican forms, and the rows of grains are usually arranged in a spiral fashion. The culture of maize must have reached a comparatively high plane in Peru, because the importance of the crop was fully appreciated, and great care was exercised in its cultivation. We are not surprised, therefore, that the plant was reverently looked upon by the Incas, who, if the stories told by the Spanish Fathers are true,—and we have no reason to doubt them all,—corn was used as a sacred plant in many of their religious rites and ceremonies.

PEANUT (*Arachis hypogæa*).—A controversial warfare has been waged as to the original home of this plant. Did it come from America, Africa, or Asia? De Candolle, after presenting the evidence offered by the argumentators on the several sides of the question, concludes in favor of an American origin. The strongest proofs of an American origin are botanical and archæological. The species of the genus *Arachis* to which the cultivated species, *Arachis hypogæa*, belongs are all American. There are six other species described by botanists, all found in Brazil and outlying regions—*Arachis glabrata*, *marginata*, *prostrata*, *pusilla*, *tuberosa* and *villosa*. That the cultivated peanut has never been found wild indicates that it has been derived, probably by selection and cultivation, from one of the other species mentioned above. Another proof of the South American origin of the peanut, ground nut, pindar, or goober, as it is variously called, is the discovery of large quantities of the underground pods by Dr. Uhle at Pachacamac, Peru. These pods differ considerably from those ordinarily sold in the markets of Philadelphia, and which come from Virginia. The Peruvian ones are usually longer, more slender, and with sharp, recurved

apices. The sutures are more prominent, and the surface is raised in elevations or protuberances by the seeds within—a feature not usually associated with the ordinary cultivated ones at the present day. The pods are about of the same size as the ones sold to-day, indicating that the cultivation of the plant had been practiced extensively and had reached a high plane of development in Peru.

SWEET POTATO (*Ipomœa batatas*).—Sweet potatoes in a well-preserved state are also included in the collection of plant remains made by Dr. Uhle. They are slightly smaller than the medium-sized ones sold at grocery stores in Philadelphia, but not noticeably so. In one instance, a diseased specimen was seen, the diseased spots much in appearance like those caused by the black-rot fungus, *Ceratocystis fimbriata* Ell & Hals., although it would be hazardous to make a positive statement by the mycelium alone.

POTATO (*Solanum tuberosum*).—Potatoes are also included in the collection. They are usually small, about an inch in diameter, and are much like the tubers of the wild plants found by the writer in the mountains of Mexico, at an elevation of 10,000 feet, and which occur from the United States to Chili along the Cordilleras. The size of the potatoes would argue that the Indians of Peru derived their supply from the wild plants of the mountains, as any primitive people might do, but Dr. Uhle informs me that it is a custom among the Andean Indians to prepare their potatoes, which are as large as our own cultivated forms, by a special preservative process, which much reduces their size. However this may be, it is not at all unlikely that the culture of potatoes has been much improved since the discovery, by contact with white men. I, therefore, still maintain that the appearance of the tubers in the collection, if prehistoric, would indicate that the ancient Indians cultivated the potato to a very small extent, and derived their chief supply from the wild plants of the region. The silence of the early travelers, who have written on the plants of Mexico and North America concerning the potato, indicates that the cultivation of the potato in prehistoric America was confined to the western coast tribes of South America.

COCA (*Erythroxylon coca*). The leaves of the coca were used by the prehistoric Indians much in the same way as the Indians of the present use them. It is well known that the alkaloid principle, cocaine, prevents tissue waste during exertion and decreases the exhaustion of laborers and travelers in the mountainous regions of the Andes. After partaking of their morning meal, the Indians stuff a loose handful of leaves into their mouths with a little calcined lime, which assists the saliva in the liberation of the alkaloid. The collection of archæological specimens from Peru shows a number of ellipsoidal pellets of lime, 3 inches long and $1\frac{1}{2}$ thick, hardened and cracked by drying, carried by the Indians on their mountainous journeys, together with cloth bags, 4 inches by 3 inches, for holding the leaves. If the specimens are prehistoric, the finding of these would corroborate the statement of the early Spanish writers, who mention the use of the plant by the Indians at the time of the Conquest.

SPECIAL EXHIBITION.

An exhibition of pictures of engraved powder-horns was held in the American Hall, February 20th to April 11th. These pictures were executed in water colors by Mr. Rufus A. Grider, of Canajoharie, N. Y., by whom they were loaned to the Museum. The horns were represented in their natural size and colors. Each was carefully labeled with the name of its present owner and location, together with many interesting historical details; the value of the collections being greatly enhanced by portraits, landscapes, maps, tavern-signs, etc., which were incorporated in the pictures. The collection, which was accompanied by a detailed catalogue, embraced 502 specimens classified as follows :

French War,	212
Revolution,	158
War of 1812,	12
Mexican War,	1
Hunting,	38
Wild Indians,	21
Foreign,	60
	502

The following notes have been extracted from the introduction by Mr. Grider to his catalogue :

“The use of horns of animals for carrying gunpowder was introduced into America from Europe. The custom has there been traced back some three hundred and fifty years, and its precise antiquity is unknown. A curved horn was particularly adapted for conveying gunpowder. Horns are easily and cheaply obtained, are light in weight, quickly prepared, are very strong, and neither rust, mold, or decay. If carefully filled the powder will keep dry, although exposed to the rain for days, and they can be floated on water without harm to the contents, a quality of great importance when an army had to ford streams of water.

The ends were securely fastened to cord or strap, worn under the left arm and over the right shoulder, the curved horn fitting the body of the wearer.

"The soldier, carrying the horn on his left side, when loading, drew out the stopper with his teeth, poured the powder into his right hand, returned the stopper from his mouth to the horn, let it drop in its place, put the powder into the gun barrel held by his upper left arm, and so on until loading was completed."

The oldest American-made horn in the collection was made in Schenectady, the "Van Antwerpen." It is dated 1683, its age being 215 years. It escaped destruction when Schenectady was burned in 1690, being on a farm in the vicinity.

During Colonial and Revolutionary times, a soldier ordered into service was required to come provided with four articles—gun, knapsack, blanket, and powder-horn. The Government furnished the rest.

It appears as if a military order required every powder-horn to be marked, that they could be returned quickly to their owners when filled from the powder wagon. From simple initials and names, dates and incidents, etc., elaborate ornamentation resulted, until it became fashionable to wear a finely-colored and decorated powder-horn.

Many in this collection show that soldiers or comrades did the decorating, but professional engravers existed who executed fine work, as may be seen from evidence afforded by the horns. It appears that they kept them on hand for sale, some being provided with a place, yet blank, for the name.

John Bush was, perhaps, the most skillful in lettering and ornamentation; Samuel Moore, of Poughkeepsie, N. Y., engraved many; and Eliphalet Stearns was another professional engraver. Such men were probably watchmakers and silversmiths, these two trades being formerly united.

When horns were fresh, the inside pith was removed by soaking and boiling in water. They were then scraped and cleaned and fitted with a wooden end. The points were shortened by sawing off, and bored to secure an opening. They were then polished and engraved. Rude engraving may have been done by a pocket knife, but that method fractured the surface.

Some are marked by pricking with a needle, but the best work was done with a graver, the outlines being traced first with a lead pencil. All those made by professionals were given a bath in some yellow or orange dye, which imparted an amber color. The lines were rubbed with wet or dry brown colors. The process ended by polishing with emery and oil. Sometimes vermilion was used to color prominent features, as forts. The yellow dye was enduring, water and soap having no effect upon it. The materials used have not been ascertained.

When an officer gained the admiration of his command, expression was sometimes given by procuring for him a finely-engraved powder-horn.

The horns decorated during the earlier French wars, say from 1730 to 1745, when the fighting was principally in the New England States, are plain compared with those of the later French wars, 1755 to 1760. During this period the finest work was done, surpassing that of the Revolutionary period. The British coat-of-arms was made a prominent feature, covering a large space of the horn surface.

During the early French wars the contest was for the possession of the mouth of the St. Lawrence River and the great fortress of Louisburg, which commanded it. In 1755, when the last French war began, the British held that point, and their object was to dispossess the French of every fort south of the St. Lawrence River, and drive them out of Canada. That policy caused the fighting to shift into Pennsylvania and New York, principally into New York. The interior of these States was at that time a comparative wilderness, the routes of travel being almost unknown. A new feature then appeared on soldiers' powder-horns, a map of the territory where the contest for mastery was carried on, showing the route or routes to the various stations or forts, settlements, etc.

Those made to suit the Braddock and Boquet expeditions to Fort Pitt are rare, only two being comprised in the collection. Those showing the northern routes are numerous. They vary greatly in extent. Many begin with the city of New York, showing its buildings, its harbor with ships, and its many churches, all with steeples. Next Albany is pictured, sur-

rounded with pickets, crowned by a fort on a hill. Its church steeples are generally tipped with crowing roosters. Then comes Schenectady, and after it forts and military stations.

Such maps generally embrace the Hudson and Mohawk rivers, and the country to the New York lakes, sometimes Montreal and Quebec, the two rivers becoming the pathways of both belligerents. These may be called geographical horns. They were not only handsome, but useful to both officers and privates. At that time no printed maps existed which were accessible to the private soldier. As to the source from which such maps were derived, judging from the names of places, some are from French, others from Dutch, some from British, and some from all three sources. There are thirty-two specimens of this character in the collection.

A soldier placed value upon the implements he carried in war, and his musket or rifle and his powder-horn were his constant attendants during years of service. They shared his hardships and dangers, and he learned to love them. At war's close he hung them in a conspicuous place on the wall of his room, where they were constant reminders of his war experiences. With them he never parted, bequeathing them to his descendants or some valued friend. In one case it is related of an old soldier who owned real estate and other property, that in making his will he disposed first of what he prized most—his ornamented powder-horn. Every officer and private carried one, mounted officers, who carried pistols, having smaller horns, such as could be put in the pocket. During the years 1775 to 1760 of the French war, about 10,000 existed in the English and American army, not counting the French. Probably the same number existed during the Revolution.

All the horns carried in the Continental army were marked with initials or names. Many of those made at this period show the spirit that prevailed in the army, as can be seen from the engraved sentiments, such as "Liberty or Death;" in "Defense of Liberty;" "My Liberty I'll have or Death;" "Liberty no Slavery;" "Death before Dishonor."

"In Thos. Gage's war, who came to Boston for ye Americans to enslave and take their rights away."

"Now is the time, ye hearts of oak,
To give our foes a fatal stroke."

"My Soard and Hart shall never Part
It's He that fights for Liberty."

"Within this Horn there doth abide
A Dust to humble Tyrant's Pride.
Then let us rise and play our part,
Stab Bloody Tyrants to the heart."

"The Lord will shield us in the Fight,
And We shall put our Foes to Flight.
Then Freedom shall be ours forever more,
And Liberty resound from Shore to Shore."

Powder-horns were last used in this country in war during the Mexican war in 1848. After that time they rapidly disappeared. As they were too large for hunting purposes many were shortened, and the engraving scraped off.

In addition to the pictures the following actual powder-horns were loaned for exhibition:

Military powder-horn. Length, 18 inches. Inscribed:

Powder With My Brother Ball
Most Hero Like Doth Conquer All,

JONATHAN CLARK LEWIS

HIS HORN MADE BY J. G.

FEBR THE 27 1773.

The opposite side of the horn is carved with representations of a man and a tortoise, bird, deer, bear, wild boar, and camel. Jonathan Clark Lewis was an Indian Trader, an Englishman. He lived and died at Groton, Mass. Died April 7th, 1781. His tombstone has armonial bearings cut thereon.*

Lent by Mr Rufus A. Grider, Canajoharie, N. Y.

Military powder-horn. Length, 19½ inches. Inscribed:

JABEZ GOODDEL'S HORN.

MADE JUNE YE 7TH A. D. 1776.

To Arms, O Free-born Sons,
Exert the Sword and Spear,

* *N. E. His. and Gen. Reg.*, Jan., 1896.

Oppose the Tyrant, and — hands
Defend your Rights most Dear.

Etching of file of troops.	Street Firing. Make ready. Present. Fire.	Etching of opposing file of troops.
----------------------------	--	--

With an intent to give the fatal Blow,
The cause he fights for animates him high.
Namely, religion and dear Liberty.
For these he conquers or more bravely dies,
And yields himself a living sacrifice.

Lent by Mr. J. Colvin Randall, who purchased it in a curiosity shop in Birmingham, England.

Military powder-horn. Length 14 inches, with brass powder measure attached by thong.

Inscribed in ink: "James Ross, January 24, 1777, Capt. Brisbans Company, 22d Penn Battalion." Lent by Mr. Richard H. Day, who suggests that the idea of the metallic cartridge may have been derived from the powder measure.

Military powder-horn. Length 14 inches. A geographical horn, inscribed with a map of the Hudson and Mohawk valleys, with British coat-of-arms, picture of New York, etc., and with blank scroll for name.

Lent by Mr. Charles E. Osborn.

Military powder-horn. Length 16 inches. A geographical horn, inscribed like the preceding, but in greater detail. Made (according to Mr. Grider) to commemorate the capture of Fort Niagara, July 24th, 1759. Bears the name of John Derbyshire, the great-great-grandfather of Mrs. Felix E. Schelling, by whom it was loaned for exhibition.

Powder-horn (hunter's). Length $11\frac{1}{2}$ inches. Engraved near small end with royal arms of England; below the legend "Philadelphia," and a plan of the city. The latter consists of 40 small rectangles (8 by 5), representing as many city squares. The names of Water, Frond, and Second Streets appear, and Market, Arch, Race and Wyne (*sic*). The old British barracks (on Second Street between Noble and Buttonwood) are repre-

sented north of the city, and the "Associated Battery" below. Windmill Island is shown, with vessels in the river.

On one side an Indian hunter with dogs is depicted shooting at a wild boar and a deer. The date has been fixed approximately about the middle of the last century.

Lent by the Historical Society of Pennsylvania, to whom it was presented by M. M. Barker in 1869.

Powder horn (hunter's). Length $13\frac{1}{2}$ inches. Inscribed with picture of an Indian hunter carrying a gun and wild turkey; above wild geese. On the opposite side a hunter in European dress skinning a deer, his rifle standing against a tree, and his dog beside him. Dated 1799. The designs on this horn are highly artistic and the horn itself of remarkably beautiful colors. It was purchased during the present year from B. M. Youells, of Scranton, Penna., who procured it in 1849 from Matthew Henry, of Bushkill, who is said to have inherited it from his father, William Henry. He is said to have acquired it from the Rev. J. Heckewelder, the missionary.



Plate 13.—Ancient snuffing-tube from Tiahuanaco, Bolivia. Natural size. Museum of Science and Art, 36,095
(See page 160.)

RECEIVED.
OCT 7 1898
PEABODY MUSEUM.

BULLETIN
OF THE
Free Museum of Science and Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

No. 4.

PHILADELPHIA, JUNE, 1898.

VOL. I.

4 A SNUFFING-TUBE FROM TIAHUANACO

BY DR. MAX UHLE

The implement shown on Plate 13 is a snuffing-tube for inhaling a powder by holding its upper end to the nostrils and placing the lower end in the powder. This use is proved by a number of analogous implements collected from the Indian tribes of Brazil and Venezuela.

It was obtained by the writer at Tiahuanaco in June, 1895, with other antiquities found on the surface of the ancient ruins, or discovered in plowing, or in small excavations, and sold to him by people of the village. He was assured that it was found in the same way. Its character shows that it was made at Tiahuanaco in ancient time.

The tube consists of the wrist or leg bone (metacarpus or metatarsis) of a young llama-like animal, as was confirmed by comparison at the Academy of Natural Sciences of Philadelphia.

The bone has been cut off at each end, and while at the upper end a part of the shaft has disappeared, at the lower end, bifurcating naturally, only the distal articulations have been cut away and each part bored, so as to communicate with the main tube. The caliber of the former is $\frac{1}{4}$, and that of the latter $\frac{1\frac{1}{2}}{8}$ of an inch.

The bone is much scraped on all sides and engraved after two technical types—deep circular engravings and superficial linear scratchings (Fig. 19). The circular engravings confirm the antiquity of the object, as this kind of ornament was common on prehispanic implements of bone. The scratchings, unartistic and inexact, might be attributed to a recent time. The designs, however, indicate a prehistoric origin. On the front of the implement is a small standing human figure covered

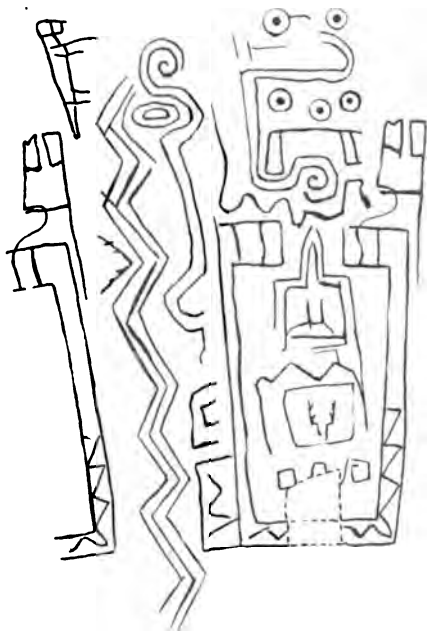


Fig. 19.—Design on snuffing-tube, from Tiahuanaco.

with a poncho. The nose only is marked on the face. Over the brow is a feather-like head-dress. The breast is covered by a shield-like ornament. Where the short legs were expressed, a small piece is broken, leaving them incomplete. A square frame partly decorated by zigzag lines surrounds the figure and is surmounted on one of its upper edges by an ornament which, by the opening of the mouth and a slight indication of nose and chin, rudely expresses an animal head. This ornament corresponds in character to bands ending in animal heads frequently found attached to relievo figures on the stone works of ancient Tiahuanaco.¹ As the present Indian inhabitants of Tiahuanaco do not use or understand the ornamentation found on the ruins, the implement must be regarded as prehistoric and made at a time near to that great first epoch of Tiahuanaco.

There are some figures of less significance on the bone :

¹ See Stübel und Uhle, *Die Ruinenstätte von Tiahuanaco*, 1892, pl. 8-21.

a snake-like drawing¹ of zigzag lines, represented with a nose and eye, and a small four-footed animal, possibly a quadruped or an insect. Each of these figures is directed towards one of the two branches of the tube, which formed the upper end of the implement when used. They may, therefore, represent a supposed vitality of the inhaled powder. There are also some lines on the front of the tube above the human figure, surrounding the circular engravings. Their meaning is clear only in part. It seems they were also intended to represent an animal (perhaps with two of the circular engravings as eyes), as may be concluded from the foot-like appendices.

The chronicler Garcilaso remarks that the ancient Peruvians used tobacco (*sairi*) for snuffing.² He gives us the first clue to understanding the tube in question. Later Alexander von Humboldt³ stated that the Otomacos believed they could not take their snuff without tubes, and all that has transpired since proves that the same is true of all Indians east of the Andes who are addicted to snuffing. It is surprising, with this in mind, that the Peruvians, a people who also practiced snuffing, have not been suspected heretofore of using tubes.⁴

Snuffing tobacco, for a long time confirmed only by the work of Garcilaso, was neither of mean importance nor small geographical extension in Peru. We are fortunate in now possessing increased material for the study of the ancient customs of that country in the old provincial reports, published since 1881 by Mr. Jiménez de la Espada at Madrid. We learn from them that the practice of snuffing must have been nearly general in

¹ While at Tiahuanaco the writer stated the existence of snake-figures not observed before (see Stübel und Uhle, l. c., p. 23 Anm 2) worked in stone, and as ornaments on pottery of the same period.

² Garcilaso, *Comm. Reales*, Pt. I, b. 2, ch. 25.

³ Alex. v. Humboldt, *Pers. Narratives of travels to the Equinoct. Regions of America*. Transl. by Thomasina Ross, II p. 504.

⁴ Snuffing tobacco was also practiced in ancient Mexico, and it might be supposed that there likewise it was not done after the European manner. Mr. Ling Roth, in *Journ. of Anthropol. Inst. of Great Britain*, 1887, p. 260, mentioned a snuffing-tube of Mexican origin in the British Museum, but I am informed, by kindness of Mr. Charles H. Read, that this was an error, he mistaking a snuffing-tube from the Madeira River, in the British Museum for Mexican.

the Highlands of middle and southern Peru, for it is reported from Jauja (middle)¹, from Lucana (southern Peru)², and from La Paz (Bolivia)³; and we have also to add Abancay⁴, Alca⁵, and Chumbivilca⁶, in Southern Peru, where tobacco, according to the reports, was used as a medicine. The mention of its use for snuffing for these latter places seems to have been omitted only for the sake of brevity, as in all other respects there is no difference in the notices.

We should probably have similar statements of the use of snuffing tobacco from the Highlands of northern Peru, if provincial reports from that region were published.

The custom of snuffing tobacco, as depending on ancient practices, is found elsewhere in South America only in the immediate neighborhood of the civilized districts of ancient Peru, as among all tribes of the Purus River according to the observations of Dr. Ehrenreich⁷ and among a plurality of tribes of the Ucayali River according to Marcoy⁸. In detail we know that snuffing is common among the Yamamadis, Ipurinas, Antis, Chontaquiros and Conibos.⁹

As the districts of these tribes border the ancient area of

¹ *Relac. Geogr.*, I p. 86: é que no sabian antiguamente curarse, más de que despues quel Inca los señoreó, hubo algunos que sabian sangrar con puntas de pedernal, y se purgaban con ucos frisolillos que llaman vilca, y tomaban el polvo de tabaco por las narices.

² l. c., I p. 192: y así mesmo usan para estornudar el tabaco molido, con lo cual dicen que sienten provecho; l. c. I p. 211: y así mesmo usan del zaire, que por otro nombre se dice tabaco, y lo toman en polvo en poca cantidad por las narices.

³ l. c., II p. 76: Hay tambien entre los indios tabaco, que ellos le llaman sayre, de que los negros usan mucho, y los indios de la raíz que llaman coro, y se purgan con ello y lo toman en polvos.

⁴ *Relac. Geogr.* II p. 209 and 218.

⁵ l. c., II p. 19.

⁶ l. c., II p. 15.

⁷ *Beiträge zur Völkerkunde Brasiliens*, 1891, p. 55 and 62.

⁸ Marcoy, *Voy. à travers l'Amér. du Sud*, 1869, p. 574.

⁹ Orton, *The Andes and the Amazon*, 1870, p. 197, mentions a different custom of snuffing tobacco in use among the Indians of the Napo: "This last they roll up in plantain leaves and smoke, or snuff an infusion of it through the nose from the upper bill of a toucan." The brevity of the notice prevents us determining the relation of this custom to the others of snuffing tobacco.

snuffing in civilized Peru and the object of the practice is partly (among the Ucayali tribes) identical,¹ the derivation of the custom of these tribes from Peru is only a natural conclusion.² The dissemination of the custom east of the Andes may be compared with that of chewing coca, which has been extended along the banks of the Amazon River down to the mouth of the Japura,³ and according to Chandless also exists on the Upper Purus.⁴

The use of snuffing was found more in a certain area of South America in connection with the powder *paricá* or *niopo*, obtained from the seeds of species of *Piptadenia*, from the sub-genus *Niopo*, especially from *Piptadenia peregrina*.⁵ The principal tribes which had this custom were on the Amazon: The Omaguas,⁶

¹ Tobacco was taken as snuff for easing the head, which custom is parallel to that indicated by Garcilaso for ancient Peru, and also as preservative against coryza (colds) after baths.

² The name used for tobacco among the Yamamadis and Ipurinas of the Purus River do not show particular reference to the word *sairi* of the Kechua language. The word *sina* of the Yamamadis (Ehrenreich, *Zeitschr. f. Ethnol.*, 1897, XXIX p. 65) reminds one more of Guana: *tena*, tobacco (Bog-giani, *Vocabulario del Idioma Guana* in: *Reale Accademia dei Lincei*, 1895, p. 22) and, on the other hand, the word *hädyiri* of the Ipurinas (Ehrenreich l. c., p. 69) of the common Arawak words *yaari*, *yoari*, etc., for tobacco (cf. v. Martius, *Beitr. zur Ethnogr. Brasiliens*, 1867: I, *zur Ethnogr. Amerikas*, p. 719, II, *Wörter-samm. brasil. Sprachen*, p. 425). The knowledge of the tobacco plant itself could have reached these Indian tribes from other parts than the civilized countries. From Kechua *sairi* other tribes may have derived their word for tobacco (to comp. *Mura tschehae*, v. Martius, *Beitr.*, II p. 424. The Muras have been said to have emigrated from Peru, l. c., I p. 411; Guana *tschai* and *tschahe* according to Cardús, *Las Misiones franciscanas de Bolivia*, 1886, p. 324, and v. Martius, II l. c.)

³ v. Spix und v. Martius, *Reise in Brasilien*, 1831, vol. III, gives much information in regard to the use of coca on the Upper Amazon. Von Martius, moreover, found a plantation of coca near Ega, a village at the mouth of the Japura River. *Reise*, III p. 1169.

⁴ To compare Ehrenreich, *Beitr.*, p. 62.

⁵ Von Martius, *Flora Brasiliensis*, 1870-76, vol. XV, Leguminosæ, pt. III Mimosæ, p. 283. Synonyms are *Acacia niopo*, *Mimosa acacioides* (and *Inga* sp.). *Piptadenia peregrina* is the present name of the plant, from which, according to v. Martius, nearly all the powder of *niopo* is obtained in Brazil and Venezuela.

⁶ De la Condamine, *Relation abrégée d'un voyage fait dans l'Int. del l'Amér. mérid.*, 1745, p. 75; v. Spix und v. Martius, *Reise*, III p. 1193 (v. Martius, *Beitr.*, I p. 441).

Tecunas,¹ Passes,² Muras,³ and Maubes⁴; on northern tributaries, the Japura: the Witotos,⁵ the Rio Branco: the Paravilhanas⁶; in the Orinoco system: especially the Otomacos, Guahibos, Salivas, Yaruros⁷ and perhaps the Maipures and Tamanacos.⁸ The practice of snuffing was also extended to Haïti,⁹ and has been occasionally ascribed to the Tupis of Eastern Brazil,¹⁰ and was also observed near Córdoba in the La Plata countries, as I hope to be able to show. The customs of these three regions still need a special examination.

The distinguished ethnologist Dr. Ernst called attention to the word *pety cui*, *pó de tabaco para ser aspirado*, found in the old dictionary of the Tupi language, which was published by Almeida Nogueira in 1879, and I also find *pytyma çui*, "*tabaco de pó*" in the old dictionary of the Jesuits, published by v. Martius.¹¹ But so far as I know there exists no other report of the practice of snuffing tobacco among the Tupis. On the other side Martius mentions that the manufacture of costly tobacco snuff (*pytyma çui*) under the direction of the colonists is an important industry of the aldeized Indians of

¹ v. Spix und v. Martius l. c., p. 1318, also 1193 and *Beitr.* l. c.

² v. Spix und v. Martius l. c., p. 1186.

³ v. Spix und v. Martius, l. c., p. 1074 (also *Beitr.*, I p. 411); H. W. Bates, *The Naturalist on the River Amazon*, 1864, p. 194.

⁴ v. Spix und v. Martius, l. c., p. 1075, 1193, 1318 (also *Beitr.*, I p. 390, 411); H. W. Bates, l. c.

⁵ According to Crévaux. I have before me only a clipping from the *Mechanical News*, which periodical may have drawn its notice from Crévaux's report indirectly. The original work of Crévaux, as well as the *Tour du Monde* and the corresponding parts of *Globus* are inaccessible to me.

⁶ v. Martius, *Beitr.*, I p. 631, after *Revista trimestral*, 1850, VI 203.

⁷ For all these tribes see Gumilla, *El Orinoco ilustrado*, 1745, I 203; P. Gili, *Saggio di storia americ.*, 1780, I 201; Alex. v. Humboldt, l. c., p. 504-506; M. E. de Rivero, *Col. de memor. científ.*, 1857, I p. 103.

⁸ According to Gili, the Maipures call the powder *nupa* and the Tamanacos *aoulpa* (? in the copy of Gili's work, which I consulted, the print is here defective).

⁹ *Life and Actions of Christophe Columbus*, including a report of Padre F. Roman, in Churchill, *Coll. of travels*, Vol. II p. 566, 570, 572, 574; Petr. Martyr, *Decad. americ.*, Dec. I, b. 9, ed. 1574, p. 109.

¹⁰ A. Ernst, *American Anthropologist*, 1889, II p. 135.

¹¹ v. Martius, *Beitr.*, II p. 86.

Borba, Serpa, and other towns of the lower Amazon.¹ Therefore it must be admitted that perhaps the word *pytyma çui* in the dictionaries is only derived from that industry, and it would be wise for us to delay the admission of the originality of the custom.—

There are from Haïti various accounts of the practice of snuffing a powder called *cohobba* (or *cogioba*) which intoxicated, caused visions, and was used especially in religious ceremonies. There is another account by Oviedo y Valdés,² that the Haïtians used to inhale the smoke of tobacco leaves laid over the fire by means of forked or single tubes. Numerous authors have confounded the above accounts. For instance, Mr. Ling Roth, in a meritorious article on the ancient Haïtians, referred all those reports to the inhaling of smoke of tobacco.³ Von Martius likewise identified tobacco with *cohobba*,⁴ and Dr. Ernst, considering *cohobba* as tobacco snuff, supposed Oviedo to have erroneously confounded snuffing tobacco powder by tubes with smoking tobacco leaves in cigars.⁵

Jefferys⁶ mentions the peculiar custom of the Haïtians to lay the moistened leaves of tobacco over half-glowing coals, and in this manner to inhale the smoke.⁷ This notice may be consid-

¹ v. Martius, *Beitr.*, I p. 721.

² *Hist. gen. y nat. de las Indias*, pt. I, b. 5, ch. 2.

³ *Journ. of Anthropol. Inst.*, 1887, p. 258.

⁴ *Beitr.*, I p. 720.

⁵ *Am. Anthropol.*, I. c., p. 134.

⁶ *Nat. and Civil History*, London, 1760, quoted by Ling Roth, I. c.

⁷ That Ernst in vain attempted to inhale the smoke by a snuffing-tube is no argument against the correctness of Oviedo's report, as he used a snuffing-tube of the Guahibos for that purpose, and it is possible that the wooden tubes used in Haïti, and illustrated by Oviedo, were of a larger caliber. The smell of tobacco and the powder of *niopo* is similar, as referred to by Gumilla, and the effect of the one compared with the other is so similar as to lead Gili to describe the *niopo* plant as a kind of tobacco tree. For the same reason the two powders are sometimes interchanged. According to Rich. Schomburgk's *Reise in Guiana*, III p. 103, the powder of *paricá* or *paricarama* (?) is ignited and the smoke inhaled. Similarly the Haïtians could apply snuffing-tubes for inhaling the smoke of tobacco. For *paricarama*, as referred to in Schomburgk's notice, might be compared the mention of *parica rana*, an acacia, as a medicinal plant in v. Spix und v. Martius, III p. 1187. *Rana* in Tupi signifies spurious, v. Martius, *Beitr.*, II p. 86.

ered as an argument in favor of the correctness of Oviedo's report.¹

Furthermore, in contradiction to what Mr. Ling Roth supposed, it is clear by the reports that the *cohobba* used for snuffing was a substantial powder.

The establishment of the latter fact does not determine the connection between the powder *cohobba* and tobacco. But the following facts will prove clearly that they were entirely distinct from each other.

1. The universal separation of *cohobba* from tobacco in

¹ There is, perhaps, another circumstance more which supports Oviedo's description of inhaling the smoke of tobacco by tubes. Dr. Ernst himself points out that the Haïtian name of the snuffing-tubes may have been *taboca*, which circumstance tends to confirm Oviedo's derivation of the word tobacco, from the name of the snuffing-tubes. The discovery that the Haïtian snuffing-tubes were called *taboca* was made by Ernst nine years ago, anticipating the same discovery by the writer. It is true that Ernst based his discovery upon the idea that *taboca* signifies the snuffing-tube among the Mura, which is not the case (v. Spix und v. Martius, *Reise*, III p. 1075, v. Martius, *Beitr.*, I p. 411). But I am able to produce now stronger evidence. *Taboca* in Tupi originally was the term for a kind of reed (compare v. Martius, *Beitr.*, II p. 87. A hill *das tabocas* exists near the town of Caxias in eastern Brazil in the ancient Tupi region. Yves d'Evreux, *Voy. dans le Nord du Brés.*, Notes par F. Denis, 1864, p. 404). This word exhibited a peculiar aptitude for spreading throughout the various languages of northern South America (similar to the Tupi: *tacuará* reed). It always signified implements actually or originally made of reed; for instance, boxes made of reed used for preserving the *niopo* powder, Mura (see v. Spix und v. Martius, and v. Martius as above), boxes for preserving coca (at Ega), v. Spix und v. Martius, III p. 1169, round nose plugs, $\frac{1}{2}$ inch thick, $1\frac{1}{2}$ inch long, of the Miranhas (v. Martius, *Beitr.*, I p. 536; Padre Armentia similarly says of the Pacaguaras in eastern Bolivia: they carry a *tacuaritu* in their nose, Cardús, l. c., p. 291). The Juri Tabocas, a horde of the Juris, received their name from a lip plug of palm wood (v. Spix und v. Martius, III p. 1236 and 1280). The Passes also call the lip plugs *taboca* (l. c., p. 1204). In this way the name *taboca* may also have been given to the snuffing-tubes in Haïti, which is not surprising, as Dr. Brinton, in *The Arawack Language of Guiana*, 1871, p. 18, gives two other very significant proofs of Tupi words in the Taino language (Haïti). I believe there is no doubt that the modern name of tobacco is derived from the word *taboca* of Tupi origin, which, in Haïti, signified tubes; and it is to be regretted that Ernst gave up this derivation, impressed by the supposed error of Oviedo, so as to embrace as the correct one a very problematic and improbable derivation from Arawak *tuka*, to smoke; *dattukapu*, I shall smoke, changed by a supposed neglect in *dattupaku*.

the reports is contrary to any supposition of their synonymy.

2. The word *cohobba*, as Petrus Martyr, or *cogioba*, as F. Roman spells it, is not derived, as Ernst¹ and von Martius suggested, from the Tupi language, but is probably the same word as *curuba* and *yupa*, the Otomaco word for the Piptadenia powder according to the two authorities Gili and Gumilla,² and

3. The extreme strength of the powder as described by Petrus Martyr,³ exceeding that of tobacco, decides its different nature and its Piptadenia character.

It would seem strange if the Haïtians should have learned from the continent the use of snuffing-tubes and not the powder used in connection with these tubes.—

The *Relaciones geográficas*, II p. 152, give the following account of a custom of the Indians who lived near Córdoba, in the Argentine:

“Toman por las narices el sebil, ques una fruta como vilca⁴; hácenla polvos y bébenla por las narices.”

The curious expression, they drink the powder with the nostrils, means without doubt that the Indians took the powder by means of an instrument like a tube. Concerning the word *sebil*, Napp⁵ tells us that *sebil* is in the Argentine the name of the Acacias. Now, the fact that Humboldt originally pointed out the *niopo* tree as a species of Acacia by mistake and von Martius called it *Mimosa acacioides* proves that Piptadenias and Acacias have sometimes been confounded. We know, further, that Piptadenia trees of the variety *niopo* are also common in eastern Bolivia and the Argentine (for instance *Piptadenia*

¹ *Am. Anthropol.*, l. c., p. 136.

² Father Gili: *curuba*, Gumilla: *yupa*. If two persons so differently conceived the same name for the same plant among the same tribe, it is not surprising that the Haïtian word *cogioba* is slightly different from the original word *curupa*.

³ Petrus Martyr, l. c.: *Tanta est pulveris illius contusi vis ut sensum omnem ilico sumenti eum, tollat. Ut primum cessit insania, etc.*

⁴ Probably also a Leguminosa, according to Middendorf, *Wörterb. des Runa Simi*, 1890, p. 459. A beverage made of it, served as purgative, but also as narcotic for foretelling in Peru and Bolivia, v. Tschudi, *Beitr. z. Kenntn. d. Allen Peru*, 1891, p. 171.

⁵ *The Argentine Republic*, 1876, p. 114.

macrocarpus, in the province of Tucuman¹), and as the bark of the *curupau* tree, which from its name and general description may be a *niopo* tree, serves, according to Cardús,² to tan hides in eastern Bolivia, so in like manner the bark of *sebil* is used



Fig. 20.—Snuffing-tube, one-third, Ipurina Indians, Purus River. Berlin Museum.

to tan hides, as I noted, in the environs of Tucuman. All this leads to the conclusion that the tree, from whose seeds the powder was made, is related to *niopo*, and a scientific determination may perhaps show it identical with *niopo*.³ The custom of snuffing *sebil* in the environs of Córdoba was, therefore, derived from another part of the continent, where snuffing *niopo* was practiced.

In examining the methods of snuffing in South America, we observe some peculiar features which do not belong to all other customs of the South American Indians.

The snuffing-tubes used are of various shapes, but all rest upon two principal types, one of which may be pointed out as the primitive, the other as the basis of all more developed shapes.



Fig. 21.—Snuffing-tube, one-third, Otomaco Indians, Orinoco River. Berlin Museum.

1. The primitive type is the single tube, which has been found among the Yamamadis,⁴ Maupes,⁵ and in Haïti,⁶ and probably occurred among many other tribes. This shape, as a general rule, reappeared when tubes of the more developed shapes were

¹ v. Martius, *Flora Brasil*, l. c., p. 282.

² Cardús, l. c., p. 339.

³ After writing the above explanation I was informed by Dr. Niederlein that the *sebil* trees of the Argentine, before classified erroneously as *Acacias*, are acknowledged now as being *Piptadenias* (*niopo*, etc.). I could scarcely have expected such prompt confirmation of what I supposed above.

⁴ Ehrenreich, *Beitr.*, p. 55.

⁵ v. Spix und v. Martius, III p. 1318.

⁶ Oviedo y Valdés, l. c.

missing. But being primitive, it possesses no comparative value.

2. The other principal type is the forked tube. It deserves attention in that it has been found in a wide geographical extension with its shape nearly unchanged. Its existence has been confirmed in the Highlands of Bolivia (Plate 13), among the Ipurinas (Fig. 20),¹ among the Omaguas,² Tecunas³ (Fig. 22), and Maubes,⁴ among the Otomacos⁵ (Fig. 21), Guahibos⁶ and Yaruros,⁷ and also in Haïti.⁸

The double-tubed instruments of this type found among the Tecunas, Maubes and Ipurinas, represent only a variety in which the bifurcation of the upper has been continued to its lower end.

It is worthy of attention that the forked tubes of Tiahuanaco,



Fig. 22.—Snuffing-tube, Tecuna Indians, Amazon River. Munich Museum.

the Orinoco River and Haïti, found at the periphery of the whole area of snuffing, and at great distances from each other, fully agree in form in contradiction to the slightly transformed forked tubes of the centre.

¹ Ehrenreich, l. c., p. 62. I am indebted for the drawings of Fig. 20, 21, 23, 24 to the kindness of Mr. W. v. d. Steinen, of Berlin.

² De la Condamine, l. c.

³ v. Spix und v. Martius, III p. 1318, and *Atlas zur Reise*, Tafel: *Indianische Geräthsch.*, Fig. 47. The instrument is preserved in the Munich Museum, and one of the figures in Ratzel, *Völkerkunde*, 1886, II p. 610, is a reproduction of it.

⁴ v. Spix und v. Martius, III p. 1318; *Beitr.*, I p. 411.

⁵ To compare Gili, l. c., and Alex. v. Humboldt, l. c. The snuffing-tube of the Otomacos, in the Berlin Museum, is perhaps brought back by Humboldt.

⁶ A snuffing-tube in the British Museum from the Guahibos is given by Ratzel, l. c., p. 611 Fig. 1. Another snuffing-tube from this tribe, preserved in the National Museum of Caracas, has been described and reproduced by Ernst in *Verhandl. der Berl. Gesellsch. f. Anthrop.*, 1886, XVIII p. 521.

⁷ M. E. de Rivero, *Col. de memor. científ.*, 1857, I p. 103 and 104.

⁸ *Life of Columbus*, etc., in Churchill, *Coll. of Voy.*, Petrus Martyr, Oviedo y Valdés, l. c.

3. The tubes of this central sphere show still other transformations of the original forked type. Angular snuffing-tubes, as shown in Figs. 23 and 24, are common along the Ucayali River¹ and in Chanchamayo, and occasionally found on the Amazon² (Fig. 25). This type can only be explained as derived from the forked tube as its prototype, because in no other way the angular combination of two tubes could be accounted for.

4. The Witotos have an instrument, which consists of two bones crossed in the shape of an X, and by means of this two

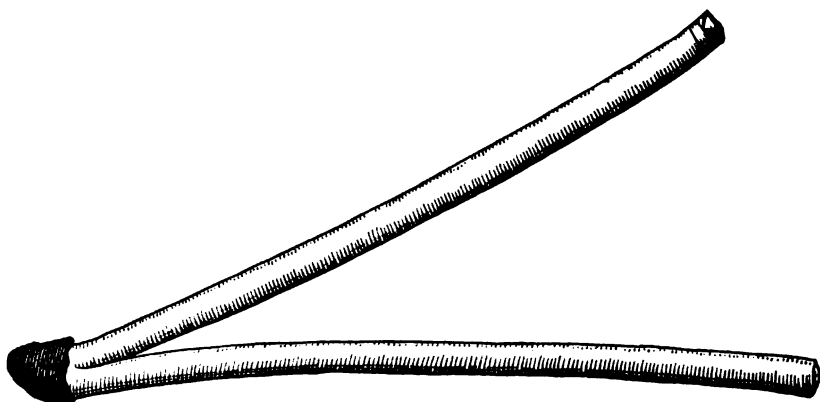


Fig. 23.—Snuffing-tube, one-third, Chanchamayo, Peru. Berlin Museum.

individuals blow the powder into each other's nostrils, as shown in Fig. 26. This curious type is also derived from the forked tube. In a certain sense it represents a departure in the opposite direction from that which led to the angularly combined tubes. In the former case, the two arms of the original implement were separated, so as to admit a reciprocal use of the snuffing powder.

¹ To compare snuffing-tubes of the Conibos in the Berlin and British Museums, the latter one reproduced by Ratzel, l. c., p. 611 Fig. 2, and a snuffing-tube from Chanchamayo with arms of unequal length in the Berlin Museum; furthermore, the notes on the snuffing-tubes of the Antis in Marcoy, l. c.

² The snuffing-tube of the Muras, in the Munich Museum, was reproduced by v. Spix und v. Martius, Atlas, Taf.: *Indian. Geräthsch.*, Fig. 63, and Ratzel, l. c., p. 610. Another snuffing-tube, consisting of two tubes joined in an acute angle, is reproduced by v. Spix und v. Martius, l. c., Fig. 49, but does not seem to have been preserved.

In the latter they were separated and differently joined, admitting only an individual use of the tube for one nostril or at the most by engaging another individual for blowing.

5. There remain very short tubes, joined at an angle and open at both ends, used by the Antis for inhaling the snuff with both nostrils.¹ This shape might appear to have been the older type than the forked tube; nevertheless I am in-



Fig. 24.—Snuffing-tube, one-third, Conibo Indians, Ucayali River. Berlin Museum.

clined to believe it a modification from that latter, which dominates in the area of snuffing, as explained above, and corresponds more closely as the archetype of all the others.

The extent of the changes in the shapes of the snuffing-tubes, as we have seen, was not great. The oldest type dominates at peripheral points of the area of snuffing widely remote from each other. Changes of the original type, apparently similar



Fig. 25.—Snuffing-tube, Mura Indians, Amazon River. Munich Museum.

to shrinkage, took place in the centre. It is to be regretted that at present we

have no knowledge of the snuffing-tubes of the environs of Córdoba.

Only two kinds of powder were used, tobacco and that of the seeds of *Piptadenia niopo*, and these within distinct zones. Furthermore, excepting the word *sebil*, only two primitive words, *curupa* and *paricá*, designated the latter powder in South America. Of these the word *curupa* belonged to a western, the word *paricá* to an eastern subzone. The latter word originated from the Tupi language,² and has spread throughout northeast-

¹ Marcoy, l. c.

² v. Martius, *Beitr.*, II p. 403. In the province Para the geographical name: Paricatuba, l. c., p. 519. Because of the Tupi origin of the word the Brazilians

ern South America¹ and a large part of the Amazon region, its fixed use reaching westward at least to the mouth of the Javary River.² On the other hand, the Omaguas on the Amazon, the tribes of the Orinoco River, and the ancient people of Haïti, all of different nationality, used the word *curupa* or derivations



Fig. 26.—Manner of snuffing, Witoto Indians, Napo River. After Crévaux.

from it.³ The slight modification the word has undergone in this area would indicate its dissemination among the tribes to have been the work of only a few hundred years.⁴

prefer the name *paricá* when speaking of the powder. Yves d'Evreux, l. c., p. 416.

¹ In British Guiana according to Rich. Schomburgk, l. c.

² According to v. Martius, *Flora Bras.*, l. c., p. 283. A name of a river Curupatuba exists on the lower Amazon east of Santarem, and is translated by v. Spix und v. Martius, l. c., III p. 1325, as "*niopo* place". If this explanation is correct (there are more words in Tupi sounding like *curuba*, compare v. Martius, *Beitr.*, II p. 393, v. Spix und Martius, III p. 1282), the name might seem to be a result of interchanges natural on such a river.

³ *Curupa* Omaguas, *curúba* and *Yupa* Otomacos, *nupa* Maypures, *yopo* Yaruros, *niopo* Orinoco tribes, *cogioba* and *cohobba* Haïti. Alex. v. Humboldt already called the attention to the curious fact that the tribes of the Orinoco River and the Omaguas of the Amazon showed some relation to each other by the word *curupa*.

⁴ The comparatively late origin of the custom of snuffing *niopo* becomes still clearer on considering in general the use of tobacco in South America. The latter occupies nearly the whole continent. The names for the tobacco

The character of the changes in the shapes of the snuffing-tubes, as pointed out above, would not lead to any other conclusions.—

The peculiar manner visible in the distribution of the use of snuffing would also be a good argument in the same direction. The practice is missing, as far as we know, in southeastern South America in the direction of Rio de Janeiro, but is very general in the Amazon Valley. Setting aside for a few moments the practice of snuffing of the environs of Córdoba, we have to come to the conclusion that east of the Andes it spread out through the Amazon system, and from there, without much difficulty, passed over to the Orinoco River and to more remote Haïti.

The geographical reasons for its distribution outweigh the national ones. While the Omaguas, Muras and Maues of the Tupi stock¹ practice snuffing, the Mundurucus,² who are also Tupis, and apparently the Tupi tribes³ of the southeast, do not use snuff. But in the Amazon Valley and north of it the practice of snuffing is common among Indians of different stocks, as Arawak, Tupi, Pano, Carib and others.⁴ All of

are much more differentiated than those of *niopo*. Some words, as, for instance, the Arawak word *yaari*, belong to great tribal stocks, having wandered with them. I might compare the general custom of snuffing *niopo* with the single fact of the late introduction of the Tupi word *pytyma* for tobacco in Chile, and also that of the distribution of the use of tobacco pipes in the southern parts of the continent by Guarani influences. Ancient tobacco pipes are found, for instance, in Rio Grande do Sul, the province of Buenos Ayres (Ameghino, *Antigüedad del hombre en el Plata*, 1880, I Pl. 7), where Tupis were living, and in Chile, and at the present time tobacco pipes are still in use among the Guarayas, Chiriguano and Siriones of the Tupi stock in eastern Bolivia (Cardús, l. c., p. 79, 249, 282). Furthermore, the ancient Calchaquis may also have used pipes. I saw a pipe of soft stone, believed to be ancient, at Belén in the province of Catamarca.

¹ Brinton, *The American Race*, 1891, p. 236.

² v. Martius, *Beitr.*, I p. 390.

³ For the same reason the idea of Ernst, who says the use of snuffing tobacco was characteristic of the Tupi tribes and derived from them (*Amer. Anthropol.*, l. c., p. 135) is not acceptable.

⁴ According to Brinton, l. c., p. 249, 258, 266, 269, 271, 287, 292, and Ehrenreich, *Zeitschr. f. Ethnol.*, 1897, p. 59, the tribes practising snuffing were distributed among the stocks as follows, Passes, (Maipures,) Tainos, Yamamadis, Ipurinas, Antis and Chontaqueiros: Arawak; Paravilhanas (and Taman-

which confirms our conclusion that the dissemination of the use of snuffing *niopo* was one of the last phenomena in the development of the customs of the eastern South American tribes.

The question arises, Are there any indications as to the source of this practice?

I have attempted above to point out that the use of snuffing tobacco of the Ucayali and Purus Indians originated in the Highlands of ancient Peru. The areas of snuffing tobacco and snuffing *niopo* are contiguous. The intimate relation between the use of both powders is apparent by the analogy of the implements connected with them.¹ It is, therefore, very natural to suppose that the one arose from the other. The practice of snuffing tobacco, according to my explanations, must have been of older date than that of *niopo*. As a consequence the use of the latter powder will have originated in the tobacco-snuffing area. Furthermore, the snuff of tobacco is milder than that of *niopo*,² and the use of tobacco snuff medicinally in ancient Peru is well confirmed,³

acos): *Carib*; Conibos: *Pano*; Omaguas, Muras, Mauhes: *Tupi*; Otomacos, Guahibos, Yaruros, Salivas: *isolated stocks*.

¹ The secondary implements used for snuffing are also analogous. The snuff-box for tobacco powder of the Purus tribes (Ehrenreich, *Beitr.*, p. 62) and of the Antis is made of a *Helix*, and, at least among the former, provided with a cylindrical neck. The boxes used by the Witotos for preserving the *niopo* powder are alike; the same is the case with that represented in v. Spix und v. Martius, Atlas, l. c., Fig. 48, and probably also with those used by the Yaruros, according to M. E. de Rivero, l. c.

² Gill, Gumilla, Petrus Martyr, l. c. The powder of *niopo* is so strong that in northern Brasil and Guiana its use as ointment serves to produce intoxication (Yves d' Evreux, l. c., p. 416, Rich. Schomburgk, *Reise*, III p. 103).

³ Tobacco was used in ancient Peru, not only as medicine, but for other purposes, as religious ceremonies (Montesinos, *Mem. antig.*, 1882, p. 16, and *Relacion anónima in Tres Relac. de antig. Peruan.*, 1879, p. 141), in fortune-telling (Balboa, *Histoire du Pérou*, ed. Ternaux-Compans, 1840, p. 29), and also by priests to produce ecstasy (v. Tschudi, *Culturhist. u. sprachl. Beitr. z. Kenntn. d. alten Peru*, p. 131). The medicine man of the Purus tribes produces ecstasy by snuffing tobacco (Ehrenreich, *Beitr.*, p. 69). V. Tschudi says that the Peruvian priests fell in ecstasy by the use of green tobacco leaves, and Marcoy, l. c., remarks that the snuff of the Antis was made of green tobacco leaves. Sairi (Tobacco) was the first name of the last reigning Inca. At Airaguanca, in Omasuyu, a plant called *Topasaire* (Royal tobacco) was shown to Padre Ramos

while the use of *niopo* is in general a vice. Vices often arise from abuses of medicines—medicines rarely do so from vices.

The distribution of the word *curupa* in a large area reaching from the Marañon to Haiti implies a western origin, and the word (as *curupau*) is also found in eastern Bolivia, at the foot of the Andes, as the name of the same if not an analogous plant. Though other reasons could be found to explain the fact that the word of the Omaguas for the *niopo* tree is the same as that used in eastern Bolivia, the best explanation, perhaps, would be that both terms originated in the large area uniform in its extension of the languages spoken in the Highlands of Peru.

In the environs of Córdoba in the Argentine, in place of the word *curupa* the word *sebil* was used for *niopo*. For determining the country from which the Argentine custom of snuffing *niopo* originated, the following account given of these Indians of Córdoba in the same report may serve as a guide:

"This people speak a language which they call Comechingona, and another, Zanavirona, though most of those who serve speak and converse in the general language of Peru (that is Kechua). They are people who, after their natural manner, clothed in wool of llamas, having a number of these animals, though somewhat smaller ones. . . . This people have but few rites and nearly the same as at Santiago."¹

It seems, therefore, that the practice of snuffing *niopo* was introduced among these Indians from Peru, as were their other customs.

There is nothing published which points to the practice of snuffing the powder of *niopo* in Peru, if not in the report of the province of La Paz. In this province two powders were used as snuff—tobacco and *coro*. This *coro*, without any hesitancy, should be declared to be *curupa*, if it had not been re-

which had been introduced there by the Inca himself (Padre Sans, *Hist. de Copacabana*, 1886, p. 9).

¹ At Santiago (de Estera) the language was also a dialect of Kechua, a useful grammar of which has been published by Miguel Angel Mossi, *Manual del idioma general del Perú*, Córdoba, 1889. It is, therefore, certain that these Indians also had similar rites as the ancient Peruvians.

ported as being a root. But the use of *niopo* being confirmed from the region of Córdoba, it seems to me more reasonable to suppose that the writer of the report was mistaken¹ than that there existed a third powder, never elsewhere reported, with a name similar to that of *niopo*, which was taken as snuff in the environs of La Paz.

In the former case it would be probable that both powders were known in ancient Peru as snuff. In the dissemination of the habit the more vicious practice would have been chosen by the wild tribes of eastern South America, instead of the milder powder which was prevalent in Peru. At least I can see no other explanation of the Argentine practice of snuffing together with the general distribution of the practice in northern South America and the great range from south to north along the Andes of the word *curupa*.

The idea of the above discussion is to remind us of the Peruvian element as having been a most important factor in the distribution of customs in eastern South America. It is a well-known fact that traces of Incaic influences are not wanting east of the Andes and far into the eastern region. It is not necessary to call to mind the infiltration by Cuzco civilization of the larger part of the Argentine, the use of the Kechua language in the upper Amazon Valley, the use of coca far on the outskirts of Incaic domination, the ancient civilization of the Omaguas, linguistic influences upon foreign tribes of the Chaco² and others. While this shows a wide range of Peruvian civilization, it does not prove an infiltration of the whole continent of South America. That this may have been the case has been pointed out, I believe, for the first time by Dr. K. v. d. Steinen in his observations on lexical references between the Kechua and idioms of eastern South America.³ My supposition of all South American practices of

¹ A *Clasificación de plantas medicinales*, printed at La Paz, mentions only under No. 56 a plant *Kkuru* (that is, *Q'uru*) as a "Calmanete para reumatismo."

² The pronoun of the second person among the Mbayas, Abipones, and Mbocobies is *asami*, according to Vater, *Mithridates*, III, in Kechua *cam*.

³ I may here mention the word *tupa* (*tupana*) for God and thunder, common to all Tupi tribes (Omaguas, Apiacas, Tupinambas, etc.). It sounds like *tunpa* near the Andes among the Chiriguano and Guarayá (Cardús, l. c., 247, 310, 76, etc.), which reminds one very much of the Creator and Thunder

snuffing having originated in Peru points in the same direction.

There are many other similar problems to be studied, for instance, the concordance of the pronoun of the first person of all Arawak tribes with that of the Kechua language, the similarity of the Arawak word *yaari* for tobacco with Kechua *sairi*, and the ancient Peruvian copper axe,¹ found in a coastal river of eastern Brazil, and described by the writer, as the explanation given for its presence there by v. Tschudi (as being lost by the Paulistas) in 1887 was not entirely satisfactory.



NOTE ON THE CRITERIA OF WAMPUM.

BY DANIEL G. BRINTON, M. D.

The essays of Woodward, Hale, Weeden, Ingersoll, Tylor, Holmes, Haldeman, Hamy and others on the manufacture and uses of wampum present many facts, but, except that of Tylor, fail to attempt exact criteria for distinguishing between the different dates of manufacture. That writer divides the beads into three periods, contrasted by the method of boring and the finish of the surface.

The first period is when the bead is finished externally by rubbing the shell on a stone until the facets unite in a fairly regular outline, and the perforation is obtained by boring from each end with a stone awl; the second period, when the surface was finished in the same manner, but the perforation made with a steel awl, such as were sold by traders; and the third period, when the beads were machine-turned and drilled in the Dutch and English factories. The stone-bored beads may be assigned, in round numbers, before the year 1600; after that date the art practically fell into disuse.²

God *Tonapa* or *Tunuupa* in the ancient myths of the northern Bolivian Highlands (*Relac. de Santacruz, Tres Rel. de ant.*, p. 236; Bertonio, *Vocab. Cast.-Aimara*, publ. por J. Platzmann, 1879, p. 192).

¹ *Verh. der berl. Ges. f. Anthrop.*, 1887, pp. 20 and 592.

² E. B. Tylor in *Journal of the Anthropological Institute*, Feb., 1897, pp. 248 *sq.*

Professor Holmes doubts whether the tubular bead, which is the most common form of the wampum as seen in the celebrated "Penn belt" and other examples, is really an ancient shape. It would seem to have come in after the discovery. Unless examples from pre-Columbian graves can be adduced, all belts showing this shape, even if awl-bored and stone-polished, must rest under suspicion.¹

Loskiel declares that shell wampum was extremely rare among the early Indians. They used beads of painted wood for their records and ornaments. Not till the Europeans sold the machine-made article did it become in any degree abundant.²

In a well-known passage of Roger Williams about wampum, he observes that the stone awl was no longer in use, and the introduction of the European article had already watered the value of the native article by one-half,³—a principle in economics which he tried in vain to make the Indians understand. This was in 1640, and it illustrates how doubtful would be a wampum belt even of that epoch. The one recently described by Prof. Hamy, and doubtfully assigned to the year 1673, is, therefore, of uncertain value.⁴

When the alleged wampum proves to be of glass beads, of course the European origin is manifest; but, as Haldeman showed by some striking examples, the specimen may date back to a time even before De Soto marched over the soil of the Mississippi basin.⁵

There seems from the above an uncomfortable doubt as to the genuine native origin of any of the wampum belts known to us, particularly as even the oldest authorities wrote after the European article had been introduced.

¹ "Art in Shell of the Ancient Americans," in *Second Annual Report of the Bureau of Ethnology*, p. 226.

² *Geschichte der Mission der Evang. Brüder*, p. 34.

³ *Key into the Language of America*, p. 176 sq.

⁴ "Sur un Wampum," in *Journal de la Société des Américanistes de Paris* Vol. I.

⁵ In *Smithsonian Report* for 1877, "On a Polychrome Bead from Florida."



Colorado. Radiograph

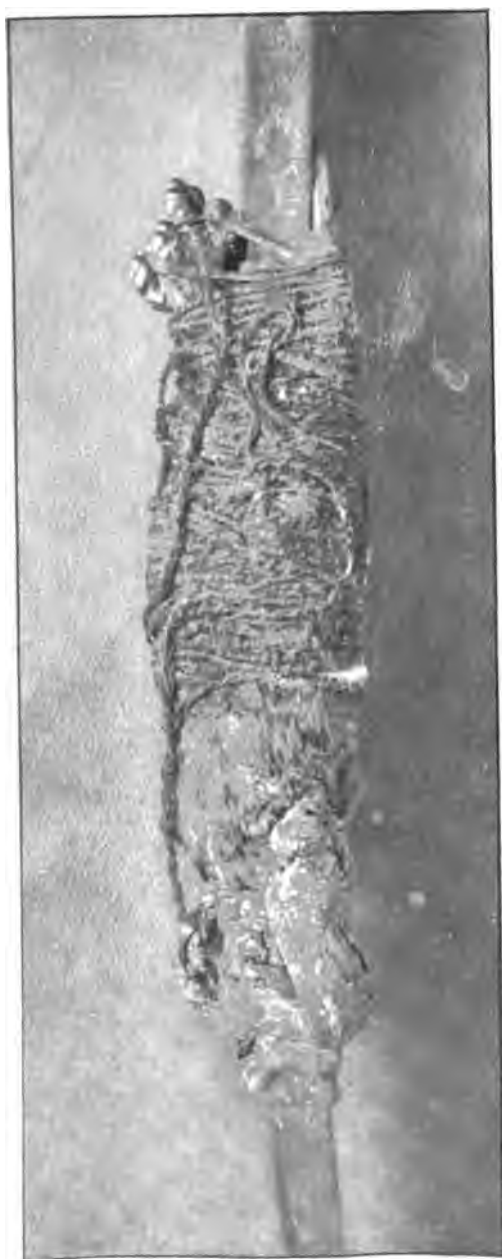


PLATE 15.—Finger loops with wrapping and felleches of throwing stick, from Mancos Cañon, Colorado. Middle view.

AN ARCHÆOLOGICAL APPLICATION OF THE RÖNTGEN RAYS.

BY STEWART CULIN.

Shortly after the announcement of Dr. Röntgen's discovery the writer, in common, doubtless, with other observers, foresaw the possible value of the new rays in examining the internal construction of valuable museum specimens, and upon the establishment of suitable apparatus in the Pepper Clinical Laboratory by Dr. Charles Lester Leonard, obtained his coöperation in an endeavor to secure a practical application of value in archæological work. Among other experiments, Dr. Leonard (May, 1897) made a successful radiograph of a mummy, excavated by Dr. Max Uhle at Pachacamac in Peru. The closely-wrapped bundle, which had not been opened, was shown to contain the skeleton of a child having a string of stone or shell beads about its neck. Another radiograph of a desiccated human foot with an attached leather sandal gave promise of the utility of such pictures in the examination of similar skeletal remains.

More recently, Mr. Cushing having expressed the opinion to the writer that a piece of turquoise, explained by him as the heart of a fetishish bird, was concealed beneath the heavy wrapping of brown yarn that binds the finger loops of the prehistoric throwing stick from Mañas Cañon, Colorado, in the University Museum, it occurred to the writer that the verification of this conjecture might be secured with Dr. Leonard's aid. Photographs of the wrapping, with corresponding radiographs made by Dr. Leonard, are shown in Plates 14 and 15. It will be seen that four stone beads, presumably of turquoise, are revealed, as Mr. Cushing had indicated. I may add that the extreme fragility of the wrapping is such as to render an examination by other means impossible without serious injury to this valuable object.

stained buckskin, and although decorated with appliqué borders of silk and with edgings of fine bead work, they are

essentially primitive alike in cut and embellishment. The hood, for example, resembles the hoods of the peasantry of Europe; but it is really an arctic style of headgear, common alike to the tribes of Siberia and to the Eskimo of our own far North. Again the silk appliqué patterns may be seen to resemble closely the highly colored and bright and identically treated skin facings on the garments of Eskimo women; while in the shape of the leggings and their edgings of fine beads may be seen combined with arctic types the porcupine quill work and footless leg gear of mid-American Indians."

MEXICO.

Mr. Charles H. Snyder has presented three effigy vases (20,991-93), from between Oaxaca and Mitla, Zapoteca.

HONDURAS.

Dr. Gustav Niederlein has presented a string of beads (20,986), bones, seeds, nuts, etc., from the Xicaques Indians, and an ancient carved stone head (20,987) from the Department of Santa Rosa de Copan.

THE FAR EAST.

CHINA.

The following images, collected by Mr. Sheridan P. Read, late U. S. Consul at Tientsin, have been deposited by Dr. William Pepper:

20,943. Kwan Yin, the Goddess of Mercy, holding a scroll and seated on clouds. Cast bronze, gilded. Height, 7 inches.

20,944. Kwei Sing, one of the gods of Literature, seated, holding a pencil in the right hand and an ingot in the left. Cast bronze, with traces of paint and gilding. Height, 11½ inches.

THIBET.

20,945. Padmapani (Thibetan, *Chenresi*) or Avalōkitsevara, the protective divinity of Thibet. Seated image of brass, inlaid with turquoises. Height, 7 inches.

20,947. Padmapani. Seated image of bronze, gilded. Height, $7\frac{1}{2}$ inches.

20,948. Shakya-thub-pa (Shakya-muni). Image of gilded bronze, seated on lotus. Height, $7\frac{1}{4}$ inches.

20,949. Shakya-thub-pa. Image of bronze, seated on lotus. Height, $6\frac{1}{4}$ inches.

20,946. The goddess Doljang, the deified consort of King Srongtsan Gampo (617–698 A. D.). Seated image of stamped copper, $9\frac{1}{2}$ inches in height. The hollow body is closed at the bottom with a copper plate engraved on the outer side with a symbol composed of four Dordje arranged with the Chinese Tai Ki in the centre. The image contained the following objects: A flat package of fine wood dust intermixed with small fragments of twigs wrapped in yellow paper; eleven rolls of paper written with Thibetan texts in red ink, from 1 inch to $3\frac{1}{2}$ inches wide, all tightly enfolded in yellow silk; two similar long strips of paper written in red with Thibetan texts and enfolded in yellow paper in flat packages, and five disks of paper, $1\frac{1}{2}$ inches in diameter, imprinted in red with magical symbols. The latter are also wrapped in yellow paper. These objects were held in place by a pyramidal plug of wood, $6\frac{1}{2}$ inches in length, covered with yellow silk.

SPECIAL COLLECTIONS.

Fans.—Mrs. Lucy Wharton Drexel has made the following additions to her collection:

Vellum fan, portrait and autograph of Madame Modjeska, painted by William F. Kline (20,940); three round fans, Japan, advertisements of tea houses (21,010–12); round fan, Japan, advertisement of *gaisha* named Shima Fugino (21,013); folding fan, *ogi*, from the monastery of Rokuyen-ji, Kyoto (21,016); large folding fan, *ogi*, Japan, painted with dragon and bamboo, by Shōjō Kiyōzai, an artist of high reputation, lately deceased, celebrated for his pictures of monkeys (21,017); round fan with picture of Suzumé, Japan (21,021); Shinto priest's fan, Japan (21,022); umpire's fan, Japan (21,023); straw fan, made at Arima, Japan (21,028); *ngá shín*, "official fan," cut from slice of palm-tree, with burnt designs, horn

handle, Canton, China (21,024); *shau sz' kûm shîn*, "longevity characters silk fan," circular, embroidered with peacock, Canton, China (21,025); *kung shîn*, "palace fan," paper, leaf shaped, Canton, China (21,026); woven palm-leaf fan, Samoa, (21,027).

Fire-Making and Lighting.—Mrs. Isaac Gross, of Sunbury, Pa., has presented a fat lamp (20,920).

Henry D. Paxson has presented a jacket or petticoat lamp (21,050) purchased at a hardware shop in Philadelphia. The vender, Paul J. Field, states that it was still used in 1866 by boiler-makers, machinists, and engineers as a portable light, and consumed lard or sperm oil.

Games.—Professor G. Wharton James, of Pasadena, California, has presented a photograph (20,952) of girls playing the game of *Hue-ta-queé-che-ka*, of the Havasupai Indians of Arizona, accompanied by the following description: "Squatted around a circle of small stones, the circle having an opening at a certain portion of its circumference, called the *Yam-se-kyalb-ze-ka*, and a large flat stone in the centre, called *Taā-be-che-ka*. The Havasupai Indians play the game called *Hue-ta-queé-che-ka*. Any number of players can engage in the game. These players are chosen into "sides." The first player begins the game by holding in his hand three pieces of short stick, white on one side and red on the other. These sticks are called *Toh-be-ya*, and take the place of our dice. Rapidly they are flung upon the centre stone—*Taā-be-che-ka*—and as they fall counts are made as follows:

3 whites up,	10
2 whites and 1 red up,	2
2 reds and 1 white up,	3
3 reds up,	5

Tallies are kept by placing short sticks between the stones—"hue"—that compose the circle, one "side" counting in one direction from the opening *Yam-se-kyalb-ye-ka*, and the other "side" keeping tally in the opposite direction.

Of late years this game has been one of the most popular forms of gambling with the Havasupai, and even the girls now play it, gambling for safety-pins or other girls' treasures.

A set of beaver-teeth dice (20,955) from the Klikitat Indians of Washington, collected by A. B. Averill, have been obtained by purchase.

Harry J. Abbott, Esq., has presented a pack of the Queen's Jubilee Cards (20,990), Goodall's Victoria Cards, London, 1897.

Numismatics.—Howard N. Potts, Esq., has presented fourteen American, thirty-nine British, and fifty-three coins of other countries in the name of Mrs. Mary Adelaide Potts.

Mr. Victor D. Brenner, of New York City, has presented his bronze medal (21,049) issued by The American Numismatic and Archæological Society of New York City to commemorate the twenty-fifth anniversary meeting of the National Conference of Charities and Corrections.

Mr. Alfred C. Harrison has presented two notes of the Bank of the United States, December, 1840, for \$2,000 (21,008) and \$3,000 (21,009).

LIBRARY.

The following are among the most important acquisitions since the last issue of the BULLETIN :

"Galerie Americaine du Musée d'Ethnographie du Trocadero, choix de pièces archéologiques et ethnographiques décrites et figurées par le Dr. E. T. Hamy, 2^{ème} partie."

Gift of *M. le Duc de Loubat*.

Compté Rendu de la Congrès International d'Anthropologie and d'Archæologie Préhistoriques," 7th session, Stockholm, 1874. 2 volumes, Stockholm, 1876.

Gift of the *Royal Academy of Belles-Lettres, History, and Antiquities of Stockholm*.

"A Dictionary of the Cree Language." By the Rev. E. A. Watkins. London, 1865.

Gift of *Mr. C. V. Alloway*, Winnipeg, Manitoba.

LECTURES.

CURIOSITIES OF AMERICAN COINAGE.

BY ALEX. E. OUTERBRIDGE, JR.¹

It is remarkable, in view of the universal desire of mankind to obtain money, that so few persons, comparatively, really know anything about the early history of money, or the social and industrial conditions which led, long ago, to the substitution of pieces of coined money for direct barter, in short, when, where, and how, the art of coining and use of metallic money originated. These are interesting subjects for historical and archæological research, and they have a direct practical relation to the development of the modern science of money. Elsewhere I have gone over this classical ground, and I propose, on this occasion, to limit the field to be surveyed to that portion of the subject which relates particularly to the early history of American coinage and its modern developments. There are many curious and important facts relative to this coinage with which the people are either wholly or in part unacquainted.

My subject will be comprised under four heads, viz.: 1. The functions of money; 2. The early Colonial coinage; 3. The coinage by private individuals or companies; 4. The National coinage.

THE FUNCTIONS OF MONEY.

In "Money and the Mechanism of Exchange," Professor Jevons relates an amusing experience of a Parisian singer who made a professional tour of the world some years ago. In crossing the Pacific Ocean the steamship was unexpectedly compelled to call at the Society Islands, where she was detained for a day or two. A few foreigners who were there invited the singer to give a concert, agreeing that she should receive one-third of the gross proceeds. The lady accepted the invitation, and the concert was well attended by the natives, who

¹ A lecture delivered in the Museum of Science and Art, University of Pennsylvania, March 23d, 1898.

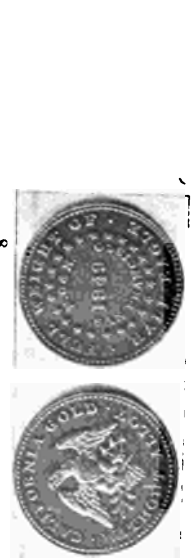
came from all parts of the islands. When the receipts were counted the lady found that her share consisted of several pigs, fowls, goats, and a large quantity of bananas, cocoanuts, and other tropical fruit. There was very little money in circulation on the islands, and as Mademoiselle could not consume any considerable portion of her share of the proceeds of the concert it became necessary to feed the live stock with the fruit.

This story is told to illustrate a difficulty which arose in the earliest commercial transactions from the want of a common medium of exchange, which difficulty led to the invention (about 700 B. C.) of coined money as a "go-between" or substitute for direct barter.

At the first glance it might appear a simple matter for the butcher, the farmer, or the miller to make due exchange of commodities without the intervention of the go-between called money, but a little reflection will soon reveal at least three great difficulties: First, that of finding two persons whose disposable goods mutually suit each other's wants; second, the impracticability of subdividing many articles; for example, a tailor cannot cut up a coat into small portions without destroying its value; third, the complexities involved in equitably adjusting the relative values of various commodities. These and other difficulties led to the selection, quite early in the history of civilization, of certain substances which, by common consent, were received by all persons in exchange for all commodities at certain rates by mutual agreement. A curious variety of materials have, at different times, and in different countries, served this useful purpose, and it is evident that such substances would soon come to possess the two great functions of money, viz.:

1. A common medium of exchange.
2. A common measure of value.

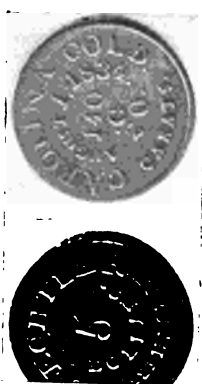
In the most primitive age the skins of wild animals were usually selected, being both useful and portable. Even in the early part of this century the business of the Hudson Bay Trading Company was transacted with the North American Indians entirely on this basis; a gun, for example, was valued at "twenty beaver skins." In Massachusetts (and other colonies)



- No. 11. \$5.00. California gold. N. G. & N., 1849.
 12. \$5.00. Oregon Exchange Co., 1849.
 13. \$5.00. Utah (Hollins to the Lord), 1850.
 14. \$20.00. Utah (Hollins to the Lord), 1849.



- No. 13. \$5.00 gold piece. Georgia gold. C. Bechtler.
 14. \$5.00 gold piece. Carolina gold. C. Bechtler.
 15. \$5.00 gold piece. Carolina gold. A. Bechtler.
 16. \$5.00 gold piece. Carolina gold. C. Bechtler (20 carats).
 17. \$5.00 gold piece. Carolina gold. C. Bechtler (21 carats).



- No. 19. \$5.00 gold piece. N. Carolina gold. C. Bechtler.
 20. \$5.00 gold piece. Carolina gold. Bechtler.
 21. \$5.00 gold piece. Carolina gold. A. Bechtler.
 22. \$5.00 gold piece. Georgia gold. Bechtler.

prior to the Revolution specie was at times so scarce that laws were passed legalizing the payment of taxes in skins, cattle, and farm products.

It is said that in the mountainous districts of Kentucky, skins are used even to this day as currency to a limited extent by the natives.

In Massachusetts a law was enacted, March 4th, 1634, as follows: "It is likewise ordered that muskett bullets, of a full boare, shall pass currantly for a farthing a-piece, provided that noe man be compelled to take above XII pence att a tyme in them."

EARLY COLONIAL COINAGE.

The inconvenience experienced from the want of specie caused the colony of Massachusetts to establish a mint as long ago as the year 1652; this was exactly 140 years before the establishment of the National Mint in Philadelphia. The Massachusetts law provided for the coinage of "shillings," "6 pence" and "3 pence," all of sterling silver, that is, 925 parts of pure silver and 75 parts of copper; the law stipulated that the coins were "to be reduced in weight 2 pence in the shilling less than the English coin." A curious mistake occurred in the calculation whereby these shillings were made $5\frac{1}{2}$ grains too light, but they served a good purpose notwithstanding. The device upon the coins is a "pine tree," and the Massachusetts pine-tree shillings are now so rare that they are only to be found in cabinets of coins.

The British Government opposed the establishment of this mint, as it did in fact all manufacturing industries of every kind in the colonies, but the mint continued in active operation for over thirty years and Maryland soon followed Massachusetts' example. These were the only silver coins issued before the Revolution, but several other American colonies issued copper coins. After the Revolution silver was coined by the different States, and even by private individuals, and very soon after peace was established Congress began agitating the subject of a national coinage. Robert Morris, the financier, was directed to present a scheme of coins and currency. His first

report (prepared by the assistant financier) was presented in 1782 and it proposed a decimal system, which has been adopted, but all the other features were discarded, chiefly on account of the diminutiveness of the proposed "unit," which was only one-tenth of a penny. Jefferson said in the discussion "a horse or bullock of \$80 value would require a notation of six figures, to wit: 115.200 units." A few years later Jefferson himself presented a report proposing the Spanish milled dollar as a suitable unit, as this coin was very familiar to the people and of a convenient size; these proceedings were under the "confederation" and one of the articles of the original compact permitted coinage "by the respective States." Vermont, Connecticut, Massachusetts, and other States issued coins under this arrangement for a few years, until the Constitution in 1787 vested the right of coinage solely in the General Government.

For some reason, not known, the code of laws for establishing the National Mint was not formulated until five years later.

The Act of April 2, 1792, provided for the establishment of a Mint, and for the coining of ten, five, and two-and-a-half dollar gold pieces; also one dollar, one-half, one-quarter, one-tenth of a dollar in silver; one cent and half-cent in copper.

Copper coins were struck at the Philadelphia Mint in 1792, some of these bore the head of Washington on one side, but he disapproved of the device and suggested the substitution of the head of Liberty. Since that time no American coin has ever displayed the head of any individual.

COINAGE BY PRIVATE INDIVIDUALS AND COMPANIES.

An exceedingly interesting curious, and, indeed, inexplicable feature of the early history of coinage of money in America, regarding which there is but little accurate information available at the present day, is the issuing, on a large scale, of gold, silver and copper coins (also "tokens") by private individuals and by trading companies. It will surprise many, no doubt, to learn the extent to which this practice was carried, and that it was permitted to exist until a comparatively recent period, notwithstanding the express prohibition in the Constitution of all such acts.



15



16



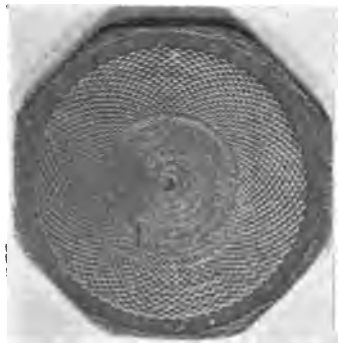
17



18



19



20



21



22



23



No. 15. \$5.00. California gold. S. M. V., 1850.
16. \$5.00. Pikes Peak gold. 1860.
17. \$5.00. Clark, Gruber & Co., Denver, 1861.

No. 18. \$2.50. Clark Gruber & Co., Denver, 1861.
19. \$50.00. Aug. Humbert, 1855. (887 thousandths.)
20. \$50.00. Wass, Molitor & Co., 1855. (400 thousandths.)

No. 21. \$10.00. Clark, Gruber & Co., 1861. Denver.
22. \$20.00. Clark, Gruber & Co., 1861. Denver.
23. \$10.00. Clark, Gruber & Co., 1860. Pikes Peak Gold.

In a report made to Congress by the Director of the Mint (Dr. Patterson) in 1840, these words may be found :

“Coinage of gold and silver, though withheld from the State, is freely permitted by individuals.”

In 1850 the assayers of the Mint (Eckfeldt and Du Bois) reported : “There are several classes of gold coins which are struck within the national boundaries, but are not of the United States ; these are Bechtler’s coins of North Carolina and the California coins.”

In 1851 the assayers reported that twenty-seven different kinds of gold coins, issued from fifteen private mints, had been received and assayed at the United States Mint in Philadelphia.

The earliest private coinage intended for use in the colonies of America (except the Bermuda “hog” coins) is known to numismatists under the general name “*Rosa Americana*,” and the story connected therewith is most remarkable. In the year 1722, Mr. Wood, an iron founder of Wolverhampton, England, claimed to have discovered an alloy suitable for coins, consisting of copper, zinc and a small proportion of silver. Through the influence of a favorite of George I, known as the “Duchess of Kendall,” a patent was issued by the King, dated July 12, 1722, together with a “Royal license,” which was to continue for fourteen years, for coining “tokens” for Ireland and the colonies of North America to a large extent, viz., “three hundred tons ;” the amount of the Irish coin was limited to £105,000, a great sum at that day.

A small royalty of £100 a year was to be paid into the King’s exchequer and a salary of £200 to an officer of the Crown, called the “Comptroller.” Sir Isaac Newton, then the Director of the Royal Mint, was chosen for this office, and he served for a short time, when he nominated a nephew, who succeeded him.

Thousands of Wood’s base metal coins were struck for use in Ireland, and the issue would probably have been accepted by the people without question, had it not been that Dean Swift, then living in seclusion, saw in this scheme an opportunity to attack the English Government, and by his “*Drapier’s Letters*,” his poems, and other writings, all anony-

mously published, in which he mercilessly lampooned the scheme and all those who were in any way connected with it, he aroused a storm of fury that is said to have been "indescribable." A writer of the day said: "All parties, Catholics and Protestants, Whigs, Tories, Orangemen and Rapparees, were equally frantic. Merchants publicly announced they would not accept the coin, the very hawkers and link-boys refused it, declaring it would buy neither ale, tobacco, nor brandy. Wood's effigy was dragged through the streets of Dublin and burned. . . . The Privy Council offered a reward of £300 for the discovery of the author of the 'Drapier's Letters.'"

The King then ordered the proposed issue to be reduced to £40,000, but this did not assuage the excitement in the least, and it finally became necessary, in order to restore peace, to buy back the Royal license from Mr. Wood, by the payment to him of a pension of £3,000 a year for fourteen years.

This failure did not, apparently, kill the project for coining money for the American colonies, and the many pieces actually struck for that purpose are creditable specimens of the art at that period. On the obverse appears the head of the king and on the reverse a full blown rose, with the legend, "Rosa Americana," and the date "1722." On the later issues the head of George II appears and the date, 1733.

There is preserved in the Massachusetts archives a letter of instructions, dated October 29th, 1725, from the Duke of New Castle to the Governor of Massachusetts, saying:

Sir, His Majesty having been pleased to graunt to Mr. Wood his letters patent for the coining of two pence and half pence pieces of the value of money of Great Britain for His Majesty's dominions in America, which said coin is to receive such additional value as shall be reasonable and agreeable according to the customary allowance of exchange in the several parts of His Majesty's dominions, as you will see more at large by the patent which will be laid before you by the person that delivers this letter to you, I am to signify to you His Majesty's pleasure that in pursuance of a clause in said patent by which all His Majesty's officers are to be aiding and assisting Mr. Wood in the due execution of what is therein directed and in the legal exercise of the several powers and enjoyment of the privileges and advantages thereby graunted to him, you are to give him all due encouragement and assistance and that you and all such other of His Majesty's officers there, whom it may concern, do readily perform all legal acts that may be

requisite for that purpose. This I am particularly to recommend to your care, and to desire your protection to Mr. Wood and to those whom he shall employ to transact this affair in the Provinces under your government.

I am Sir

Yr Most Humble Servant

NEW CASTLE.

If we may rely upon the statement of an English writer of the day Mr. Wood's coin did not meet with a very cordial reception in America, for the pamphlet says:

"Wood obtained a patent for coining small money for the English plantations in America in which he had the conscience to make 13 shillings out of 1 pound of brass, this money they rejected in a manner not so decent as that of Ireland."

In the year 1830 Mr. Templeton Reid, of Georgia, established a private mint at which he coined \$10, \$5, and \$2.50 gold pieces; these circulated freely through the South, and they were brought to the U. S. Mint in Philadelphia for deposit and re-melting in quantities. The assayer reported in 1842 that the \$10 gold pieces of T. Reid weighed 248 grains, contained 942 parts of pure gold in 1,000 parts of metal, and the intrinsic value slightly exceeded the nominal value, being worth \$10.06. These coins are now quite rare.

In 1831 Christopher Bechtler of Rutherfordton, N. C., followed Mr. Reid's example on a larger scale, and in a few years he had issued several million dollars worth of gold coins of denominations of \$10, \$5, \$2.50, and \$1.¹

In 1842 the Mint assayers stated that "coining is still carried on by Bechtler, although there is a branch United States Mint less than eighty miles distant." This was located at Charlotte, N. C.

In 1851 the assayers reported that "several of the private issues of gold coins from California are close imitations of the national coin; some assay nearly up to the nominal value, but many fall below." A \$10 piece of the Pacific Company only yielded \$7.86 in gold. A lot of different denominations

¹ In 1840 Mr. Bechtler stated that the amount of his coinage to date was \$2,241,840.

aggregating \$562.50, nominal value, yielded at the Mint in Philadelphia \$479.20.

One interesting gold coin, a \$50 piece (some were octagonal), issued by Aug. Humbert, United States Assayer at San Francisco, yielded the full nominal value. All of these private issues have now been stopped, and strict laws have been passed punishing any attempt to imitate the coins of the nation; even the toy money formerly made for children of gilded paper has been prohibited by the government authorities.

THE NATIONAL COINAGE.

The Mint was established in Philadelphia in 1792 and in its first year issued copper coins only, coining of the other denominations of money, as already named, commenced in 1793.

Many persons believe that the so-called "Dollar of the Daddies," weighing $412\frac{1}{2}$ grains (nine-tenths fine), having a ratio to gold of "16 to 1" in value when first coined, was the original dollar of the Constitution. This is, however, erroneous. The $412\frac{1}{2}$ grain silver dollar was not authorized until forty-five years later. The original silver dollar weighed 416 grains, and the ratio of silver to gold was 15 to 1, not 16 to 1.

Several modifications in weight and fineness of both gold and silver coins were made during the first few years, prior to the Act of January 18, 1837, which greatly simplified the coinage by adopting the French decimal system, including a uniform "fineness" or proportion of 9 parts of gold to 1 part of copper for the gold coins, and the same proportion of silver and copper for the silver coins; the weights of the gold and silver coins were, at the same time, readjusted so as to make the ratio "16 to 1" between silver and gold.¹

The total issue of silver dollars coined under the Acts of 1792 and 1837 until 1873, when the coinage was dropped, amounted

¹ The original silver dollar, authorized under the Act of April 2, 1792, contained 892.4 parts of pure silver in 1000 parts of metal and weighed 416 grains. The Act of January 18th, 1837, changed the proportion of silver to 900 parts in 1000 and the weight to $412\frac{1}{2}$ grains, the amount of pure silver thus remained unchanged.

to \$8,031,238. When the Bland Act was passed, in 1878, the silver in the silver dollar weighing 412½ grains was worth 89.1 cents; to-day the silver in the same dollar is worth about 42.5 cents. In the first four months after the Bland bill was passed 8,573,500 Bland dollars were coined, or more than the entire issue of the old silver dollars in eighty years. In the same year also the Mint coined 11,378,610 "trade dollars" which weighed 7½ grains more than the Bland dollars, but were not "legal tenders,"¹ and, though issued by the United States Mint, were refused by the United States Government in the payment for postage stamps, taxes, or for other dues, while the Bland dollar, of lesser intrinsic value, was a legal tender and good for payment of all debts. The total issue of trade dollars between 1873 and 1879 was 35,965,924, and the total issue of Bland dollars, from 1878 to the close of the fiscal year 1897, was 451,993,742.

The following table shows the total coinage value of all denominations of silver coin from the establishment of the United States Mint in 1792 to the end of the last fiscal year, June 30, 1897:

Dollars	{ 1792 to February 12, 1873	\$8,031,238 00
	{ 1878 to June 30, 1897	451,993,742 00
Trade Dollars		35,965,924 00
Half "		134,033,195 00
Columbian Half Dollars		2,501,052 50
Quarter Dollars		52,395,052 00
Columbian Quarter Dollars		10,005 75
20 Cent Pieces		271,000 00
10 " "		29,428,613 90
5 " "		4,880,219 40
3 " "		1,282,087 20
Total		\$720,792,129 75

It thus appears that the Bland dollars coined since 1878 exceed in coining value all the other issues of silver money

¹ The act of Feb. 12th, 1873, made the trade dollar a "legal tender in sums not exceeding \$5.00; this legal tender quality was withdrawn by the joint resolution approved July 22d, 1876, and the coinage was limited to such amount as the Secretary of the Treasury should consider sufficient to meet the export demands."—*United States Treasury Department Circular No. 143.*

from the establishment of the Mint, in 1792, to the present day.

Although Congress appropriated a sum of money (\$40,000) to "pay the freight" on Bland dollars from the Mints, or Sub-Treasuries, to any part of the country, the government has never succeeded in getting more than a small proportion of the vast accumulation of Bland dollars into circulation. It became necessary, therefore, to construct enormous storage vaults of steel, some of which will hold more than one hundred million of these dollars. The depreciation in market value of silver in the Bland dollars and uncoined bars is estimated to be about \$200,000,000.

The dropping of the original $412\frac{1}{2}$ grain silver dollar from the law of 1873 was purposely done in order to make a place for the new silver coin called the "trade dollar," ostensibly intended for foreign trade only, actually put into circulation to a large extent at home at a profit to silver owners, the "free coinage" privilege and falling market value of silver made these transactions remunerative. Some people who accepted the trade dollars in good faith suffered loss.¹ This was the first entering wedge of the silver speculation which has attained such gigantic proportions.

The first coinage of the country was, in a measure, experimental; there were several different and very complicated finenesses, or proportions of precious metal and alloy used. Then, in 1837, an admirably simple system of coinage proposed by Dr. Patterson was established. Later on various more or less absurd ideas were advanced and experiments were tried, such as the "goloid" dollars, consisting of silver and gold in proportions of 24 to 1 and $15\frac{1}{2}$ to 1, invented and patented by

¹ Under the act of Feb. 19th, 1887, holders of trade dollars were permitted to exchange them for "Bland" dollars if presented at the Treasury, or any sub-treasury, within six months from that date. Less than one-fourth were thus redeemed, (7,689,036), and since the expiration of the period of redemption, trade dollars have been purchased as bullion, at the market price of silver, when presented at the mints. Although containing more silver than the Bland dollar, the trade dollar is worth less than half as much, owing to the low price of silver.

Dr. W. W. Hubbell. Specimens of these freak coins were struck at the Philadelphia Mint in 1878.¹

At the time that Congress was engaged in formulating laws for the establishment of the Mint and the regulation of the coinage in 1792, the production of silver in this country was insignificant in amount. From 1845 to 1857 inclusive, the silver output is estimated to have been about \$50,000 each year. As long ago as the year 1853 the production of gold amounted to \$65,000,000 and the annual output has never equaled that amount since that time. In 1860 the silver product amounted in value to \$150,000. In 1861 it jumped suddenly to \$2,000,000, in the following year to \$4,685,000, in the next year to \$8,500,000, and so on, by leaps and bounds, until, in 1878, we were turning out about \$45,000,000 worth of silver (commercial value) per annum. This was the real reason why the Bland bill for the restoration of the old silver dollar, weighing 412½ grains, was introduced into Congress and passed over the President's veto. It was then supposed that a maximum output of silver had been attained, but this was far from the fact. Production increased amazingly even in the face of falling prices.

In 1878, the year the Bland bill became law, the average price of pure silver was \$1.15 an ounce, and the output from American mines was less than 35,000,000 fine ounces. In 1896 the average value of an ounce of fine (pure) silver was 67 cents, but the output of silver had risen to nearly 59,000,000 fine-ounces. Since that time the price of silver has fallen still lower; to-day it is about 55½ cents per ounce.

In 1837, when the 412½ grain silver dollar was authorized,

¹ Two different designs of goloid coins were struck :

1. The "goloid dollar," having the head of Liberty and motto "E Pluribus Unum" on the obverse, while on the reverse the following figures appear: 1 gold, 24 silver, .9 fine, 258 grains.

2. The "goloid metric dollar," having similar design on the obverse, and on the reverse the following figures: 15.3 gold, 236.7 silver, 28 copper, 14 grammes.

Proof specimens of these coins are preserved in the cabinet of the Mint in Philadelphia.

the pure silver contained therein ($371\frac{1}{2}$ grains) was worth 100 cents in gold. To-day the pure silver in the Bland dollar is worth $42\frac{1}{2}$ cents.

The value of any raw product depends mainly upon the relation between the production and consumption; when this remains constant the price of the commodity varies but little.

The commercial ratio of silver to gold has been carefully determined by Dr. A. Soetbeer, the renowned statistician, from the years 1687 to 1832; by Pixley and Abell from 1832 to 1878, and after the latter date by the daily cablegrams from London to the Bureau of the Mint. These tables show that the ratio between silver and gold vibrated between the limits of a trifle below 15 to 1 and 16 to 1 for nearly two centuries. In 1873 the ratio was almost exactly 16 to 1, then the great flood of silver began to pour out from the famous Comstock lode and other mines in the West, so that production soon far exceeded consumption. The government was compelled by the "Bland" Act of February, 1878, to purchase silver at the rate of "not less than \$2,000,000 worth per month." This continued without interruption for twelve years (from 1878 to 1890) during which time more than four hundred million silver dollars were coined. The Sherman Act, repealing the coining of the Bland dollars, really made matters worse, in some respects, as it authorized the purchase by the government of not less than 4,500,000 ounces of silver per month, and 168,674,682.53 fine ounces were purchased in four years (1891-1894) at a cost to the government of \$155,931,002.25, under the act of July 14th, 1890. The average price paid for this silver was almost $92\frac{1}{2}$ cents per ounce. At the present market price ($55\frac{1}{2}$ cents per ounce) there is a depreciation in value of \$62,316,553.45 on the silver pigs purchased under this act. Notwithstanding these heroic efforts to sustain the price of silver through the compulsory purchase by the government of such vast quantities of the metal, the flood continued rising higher and higher while the price descended lower and lower, thus proving that silver obeys the law of all commodities, and that any attempt to sustain the price by artificial means, even when

backed by such a rich and powerful government, and carried out on such a great scale, must surely fail.¹

COINING OF GOLD.

If the question should now be asked you, "What denomination of gold money of the United States has been most largely coined since the establishment of the Mint in 1792?" you would probably say the "gold dollar, of course." The answer would be wrong—very wrong. Less than twenty million gold dollars in all have been struck, and their coinage has been entirely discontinued for nearly ten years. If, on the other hand, the question should be asked, "Which denomination of gold money has been coined most sparingly?" you would probably say, "the double-eagle." Again the answer would be wrong.

Although the double-eagle was not authorized until 1849, fifty-seven years after the Act which authorized the eagle, half-eagle and quarter eagle, more double-eagles have been coined than of any other denomination of gold, and the intrinsic value thereof is more than twice that of all the other gold coins put together. The total value of all gold coined in the United States Mints, except the double eagles, from the organization of the Mint in 1792 to June 30, 1897, is \$548,840,918. The value of the double-eagles coined since 1850 (the first year of their coinage) to June 30, 1897, is \$1,337,498,040.

¹Circular No. 143 (dated July 1st, 1897), issued by the United States Treasury Department, says, p. 63: "The stock of gold and silver in the world in 1873 and 1896 is estimated to have been as follows:

	1873.	1896.
Gold	\$3,045,000,000	\$4,100,000,000
Silver.....	1,817,000,000	4,200,000,000

The commercial value of silver in 1896 was less than one-half of its value per ounce fine in 1873; notwithstanding this great fall in price, the estimated value of silver in the world in 1896 exceeded the estimated value of gold at that time, while in 1873 the estimated value of silver was only 59½ per cent. of the estimated value of the gold in the world.

Stated in other terms, the gain in estimated value of gold is 34.65 per cent., while the gain in estimated value of silver in the same period is 131 per cent.

A circular issued by the United States Treasury Department says: "The total coinage of gold by the Mints of the United States from 1792 to June 30, 1897, is \$1,886,338,958, of which it is estimated that \$671,676,250 is now in existence as coin in the United States." The pamphlet explains in detail the basis upon which the estimate of the gold coin in the United States was established, and says: "It will be seen that more than two-thirds of the gold coins struck at the mints of the United States have disappeared from circulation." This is an astounding statement. What has become of all this vast store of gold, amounting in value to \$1,214,662,708, or more than 90 per cent. of the value of the entire issue of double eagles?

It is not a mere theory of mine that the disappearance from circulation of about two-thirds in value of all the gold coins struck at the Mints of the United States is due in part to the preponderance of coinage of double eagles. Thirty-seven years ago the Director of the Mint called attention to the matter in his official report as follows: "The chief design of a National Mint is to subserve the interests of the people at large preferably to a few large owners of bullion or coin. The interests of the public and of depositors are not always concurrent in the matter under discussion. . . . The plain effect of issuing gold coin of a large size is to keep down the circulation of specie, and increase the use of paper money."

In the Director's report for the year 1880 I find the following: "In Great Britain the gold coinage consists almost wholly of sovereigns and half-sovereigns; in France, of twenty and ten-franc pieces; and in Germany of ten-mark pieces, all of these coins being of less value than five dollars. The absorption by France of \$1,100,000,000 of gold imports into her circulation during the thirty years from 1850 to 1880 may in part be accounted for by the coinage of nearly all this gold into denominations of less than two and four dollars value."

The average coinage value of double-eagles during the past four years has been over \$44,000,000 a year, as compared with a yearly average value during the same period of about \$10,000,000 in eagles, \$4,000,000 in half eagles, and \$30,000 in

quarter eagles! It thus appears that we are still coining two-thirds of our gold into double-eagles that never pass into circulation and disappear immediately.¹ If, instead of pursuing this short-sighted policy for so many years, the people had been encouraged, by the issue of small denominations, on the return to specie payments in 1879, to circulate gold instead of paper, the gold could not have been so readily drained away from this country to foreign lands, as has unfortunately happened on a great scale during the past few years.

If these words shall produce any impression upon those in authority, and thus lead to a modification of our coinage laws or customs in this regard, the attempt I have here made to combine with an academical discussion of the curiosities of American coinage some practical suggestions for improvement therein may not prove altogether futile.

For nearly fifty years we have been coining double-eagles (not to mention eagles) that are, as a rule, immediately shipped to Europe; there they go at once to the melting-pot, and are converted into British sovereigns (having a different proportion of alloy) or into gold coins of other nations; as soon as the rate of exchange changes beyond a certain degree these brand-new foreign gold coins are to some extent shipped back to us, and they in turn go to the melting-pot at the Mint, where the proportion of alloy is again changed to make the standard of the United States (9-10 fine). The gold is then recoined, shipped back to Europe, and so the process is repeated indefinitely.

In addition to the large expense involved in this useless and endless work there is irrevocable loss of precious metal with

¹The following table shows the gold coinage executed at the mints of the United States during the fiscal year ended June 30th, 1897:

Denomination.	Number.	Value.
Double Eagles.....	2,990,241	\$59,804,820.00
Eagles.....	804,801	8,043,010.00
Half Eagles.....	747,802	8,739,010.00
Quarter Eagles.....	28,946	59,865.00
Total gold.....	4,566,290	\$71,646,705.00

each handling, melting, and coining. I believe that all this is unnecessary. It would be perfectly feasible for the nations to agree upon some simpler method of adjusting trade balances at a tithe of this cost; and even if the time shall not yet have come for making such settlements by a sort of international clearing house, a partial solution of the difficulty would be found in the adoption of an international gold coin, or in the more general employment for export of fine gold bars instead of coin, which have been assayed at the mints or United States Assay Offices and officially stamped with their weight and fineness. There is less risk of loss by robbery in transshipment of such bars, and counterfeiting is not likely to prove a dangerous impediment for several reasons, one of which is that such bars do not pass into general circulation.

It is, of course, necessary, before we can hope to interest foreign governments in any improvement in international monetary matters, that we should adopt a reform in our own currency, bringing order out of the present chaotic condition.

In conclusion, I desire to call your particular attention to the valuable collection of early American coins, as well as coins of other nations, deposited in this Museum by Mr. Robert C. H. Brock, of Philadelphia, from which the Director, Mr. Culin, has had the illustrations made. This collection is rich in specimens of all of the issues mentioned, and they are in excellent preservation.

DR. E. B. LANDIS.

Dr. E. B. Landis, a corresponding member of the University Archæological Association and a valued contributor to the Museum, died at Chemulfo, Korea, on the 16th of April last after three weeks' illness. Dr. Landis graduated in Medicine Department of the University of Pennsylvania in the class of 1889, and went to Korea in 1890. He at once undertook to collect archæological specimens for the Museum, and in the following year transmitted a valuable series of objects from graves in Song-Do. Important collections were subsequently made by him, and at the time of his death he was editing a catalogue of his Korean coins which he had presented, for publication in the BULLETIN. Dr. Landis contributed numerous papers to scientific journals on Korean customs. During the war between China and Japan he rendered eminent services to the Chinese sick and wounded, for which he received a decoration from the Chinese government. His early death is a loss not only to his friends, but to the science to which he was devoted.

RECEIVED,
APR 8 1899
PEABODY MUSEUM.

BULLETIN
OF THE
Free Museum of Science and Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

No. I. PHILADELPHIA, JANUARY, 1899. Vol. II.

LIFE IN THE LUCHU ISLANDS.

BY DR. WILLIAM H. FURNESS, 3D.

Each year finds the Luchu Islands more and more important, commercially, to the Japanese government, although, as yet, they are but little known to the busy world which sails past them to and from the markets of China, Japan, and the far East. After careful search, I have been unable to find any detailed account of these islands, or of the people, before the visit paid to them by Captain Basil Hall, of H. M. S. "Alceste," in 1816. His accounts of the people agree in every particular with what Dr. H. M. Hiller and myself observed in 1896 (eighty years after Captain Hall's visit), albeit during these four-score years the independent rule of a king has been abolished, and the islands are now entirely under the government of Japan. In view of this fact, the conclusion seems warranted that all changes in manners and customs in this small country are slow, compared with the rapid advance which is going on all around them. What was true in 1816 was most probably true a hundred years before.

According to their own traditions, they never have been a warlike people, and have mingled no further with their near neighbors than the payment of a yearly tribute both to China

and to Japan. Chinese influence, however, must have become marked, and no doubt many Chinese words crept into the language, and Chinese customs were introduced after the subjugation of the Luchuans by the Emperor Hongwou, the founder of the Ming dynasty, about A. D. 1372. Many Luchuan youths were, after this date, sent to China to be educated, and a castle on an island in the harbor was reserved for the use of the Chinese traders. The castle is still standing, but is now used as a rather ultra-fashionable and exclusive "tea-house."

For over two hundred years the islands were, more or less, under the exclusive rule of China, until in 1609 the Japanese Prince of Satsuma subdued them, but, for pecuniary reasons, did not forbid the payment of the yearly tribute to China. This double allegiance, as it were, to two countries continued until 1874, when the Japanese suddenly forbade all intercourse with China, and the King of Luchu was kept as a state prisoner in Tokyo.

As I have just said, the people of the Luchus are a most peaceable nation; in fact, there is no native hostile weapon of any kind or sort whatsoever to be found in the islands, and how the natives could have sprung from either the pugnacious little Japanese or the quarrelsome Chinese of those early days or of any days is a problem. Professor Basil Hall Chamberlain, the eminent Japanese scholar and philologist, has made a most careful study of the Luchu language (*Supplement to Trans. of the Asiatic Soc. of Japan*, vol. xxiii), and, from a linguistic point of view, he is led to believe that the archaic Luchuan and the archaic Japanese (cir. 8th century A. D.) were derived from a common source; therefore the Luchuans are more closely allied, in point of origin, to the Japanese than to the Chinese, although, at first glance, at the present day they appear, both in language and customs, more like the latter. One of the most striking indications to me that they are of Japanese parentage rather than Chinese is the fact that they cannot pronounce the letter "l," and substitute therefor the sound "r." For instance, they do not call the archipelago on which they live the "Luchu" Islands, but "*Riu Kiu*," and in their language there is no word with "l" in it; hence the name

25-6-3
49-2

Luchu or *Liu Kiu* (as it is sometimes called) can hardly have been other than of a purely Chinese origin. In an article in *The Geographical Journal* (London, April, 1895), Professor Chamberlain proposes, as a theory concerning the origin of the Luchuans, that the common ancestors of the present people of Luchu and Japan came across the Korean channel and landed in Kyushu, the southernmost great island of Japan. This theory is strengthened not only by the geography of the countries, but by the trend of legend, and by grammatical affinities between Japanese and Luchuan with Korean and Mongol. These common ancestors swept eastward and northward, driving before them the savage races of which the Aino is at present the remnant. Very early in this invasion a small branch stream of invaders swept southward and spread out over the islands lying—one almost in sight of the other—far away into semi-tropical climates. Whether or not there were Aino predecessors of the Japano-Luchuan race in Luchu, Professor Chamberlain thinks that it is now impossible to say. Two local names in the Aino language have been adduced by a Japanese scholar, Kada Teiichi San, in support of this theory, but these, Professor Chamberlain thinks, are an inadequate support. He regards Dr. Doederlein's observation in Oöshima (the largest of the northern islands) of numerous hairy individuals among the smooth-skinned general masses as far more valuable grounds for argument. Both Dr. Hiller and myself, in the interior of the northern part of this same island, noted, entirely independently of Dr. Doederlein, a considerable number of men, who certainly were as hairy on the legs, arms, and chest as the average European, and far more hairy than any Japanese or Chinese. There is no known instance of Europeans having mixed with these people; but still, it must be borne in mind that for several centuries Dutch, Spanish, and Portuguese ships have been cruising in the neighborhood of these islands, and a shipwrecked Caucasian crew very possibly might have disseminated their characteristics to the third and fourth generation sufficiently to make their descendants hairy by contrast with the smooth-skinned natives. We were rather inclined to this solution of the problem, owing to the fact that in a cave in the

northern portion of this island we found a large collection of human bones, of which the natives could give no explanation; and we were, therefore, led to infer that they were the remains of shipwrecked crews. The people living thereabouts maintained that these bones had been there beyond the memory of the "oldest inhabitant;" and we were also told that the legend ran that there was a dragon in the cave, and that these bones were the "crumbs" from his table. Not far from this cave was what we also inferred were the remains of foreign habitation; it consisted of a well-cut tunnel running directly through a small hill jutting downward to the sea, and separating one deep bay from another. This passageway was also a mystery to the natives, who knew of it, but were at a loss to explain either who had dug it or its use. Our only conjecture was that it had served as a means of escape between the two bays, which possibly had been the headquarters for a band of pirates in days long gone by, and of which all record is lost, except, perhaps, that which Dr. Doederlein observed stamped on the legs, arms, and chests of a few of the scions of the first Luchuan families.

We were told of this cave, with its bones, by our admirable friend, the Abbé Ferrier, the model French missionary living in the town of Nasé; then, under the protection of a Japanese police official, we walked to the northern end of the island, a distance of about twenty-three miles, and were rewarded by getting eight very well preserved skulls and many other bones. There were, in the several divisions of the cave, what we roughly estimated to be the remains of at least forty or fifty people, young and old. For the most part the bones were piled together without any arrangement, but in several places where there were convenient ledges the skulls and long bones had been gathered in groups of three and four. We would have taken many more of these bones had we not been compelled to carry them home ourselves; no native would so much as touch even the outside of the bags which we had furtively brought for the purpose of bringing back our "finds." Our most careful search for pottery or implements was unrewarded; we failed to find any link which could connect these scattered and neglected

remains with the present inhabitants of the island, who are so punctilious in their care of the tombs of their ancestors, and raise their dead relatives almost to the rank of demi-gods.

The people of Oöshima, the largest of the islands comprising the northern sub-group, are, at the present day, hardly to be distinguished from the Japanese in the southern part of Japan. Their language is quite comprehensible to a native of Kyushu, and in only a few slight differences in the fashion of dress and in the arrangement of the hair do they differ from the peasantry of Japan. Not many years ago it was the custom for all women in Oöshima to tattoo the backs of their hands, but the Japanese government is doing all it can to stop this fashion, so that the people of the two countries may tend to amalgamation. It is, however, not at all uncommon to see the beginnings or outlines of the designs on the hands of small children whose mothers are loath to give up the customs of their youth, and in the more southerly islands of Okinawa or "Great Luchu," where the modernizing influence of Japan has not yet made such advance as to change the manners and customs of the people, tattooing is still universal among the women.

Physically, the Luchuans are pretty much the same as the Japanese; short in stature, the average height being about 5 feet 6 inches; both men and women of the lower classes are stockily built, and seem capable of carrying great weights on their head and shoulder. The men of the upper class, living in the two large neighboring towns of Shuri and Naha, seem to be thoroughly indolent, and with no object in life other than to amuse themselves in drinking hot "Shoju" (a strong alcoholic drink, made of millet), and in playing on the "Jamsing" with their friends. The women of quality are never seen by foreigners, be they Japanese, Chinese, or Europeans; indeed, so seclusive are they that a Luchuan gentleman considers it rude and prying even to be asked about the health of his wife or daughters. Iwai San, the chief collector of taxes in Okinawa, a highly intelligent Japanese gentleman, told us that although he had been three years in the island, and knew intimately some of the best men in the cities of Shuri and Naha, he had never seen a high-born Luchuan lady. These ladies have sep-

arate apartments in the back part of the house, with gardens surrounded by a high wall, wherein they take exercise; when paying visits from one house to another, a sedan chair, or "Kago," is brought into the room, and my lady steps in closely veiled, and not even her chair-porters see her face.

The lower and middle class women are the drudges of the community, and do the work for all; they it is who work in the fields, and tend the crops, and when the produce is ready for market, carry it down to the town, and sit all day in the market place, patiently guarding their stall, and busily gossiping with their neighbors; the lazy husband meanwhile loafs about the streets, shading his delicate skin with a green paper parasol, and taking occasional drinks with convivial friends. After one gets used to the Mongolian type, the women of Luchu have not unpleasing faces; their eyes are dark brown, their noses flat, but at the same time aquiline; their mouths are not large, and from a slight downward curve at the corners, give the whole face a somewhat sad expression. In comparison with their sisters of Japan, however, they are slovenly in their habits; their garments are not neat, and always look about to fall off, or blow away with the wind. The arrangement of the hair is not as elaborate as that adopted by either the Japanese or Chinese women, because in Luchu utility is the dictator of fashion, and owing to the universal custom of carrying on their heads everything from fruits to goats and living pigs, the knot of hair is tied far over on one side; but after two or three burdens have been carried it is flopping over one eye in a most tipsy manner.

This knot of hair is held together by two oddly shaped pins, the most important part of the Luchuan costume, since the material whereof the pins are made denotes the class to which the wearer belongs. When the fashion of these pins was introduced, about three hundred and eighty years ago, feudalism was in vogue in the islands, and the several classes were compelled to show their rank by the material which was used in the making of these hair-pins; thus, only those of noble birth were allowed to wear pins of gold; the feudal lords wore silver, the merchants and farmers wore brass, and the very poorest

wore pins of pewter or of plain wood. At the present day this distinction of classes has been abolished by the Japanese government, but still the people cling to the old custom. The wives of the wealthy farmers, on state occasions, such as weddings, funerals, and festivals, wear a very long pin made out of hexagonal pieces of tortoise shell, alternately black and yellow. The metal pin worn by the women is about eight inches long, quite slender in the shaft, and ending in a peculiar bowl-shaped head, like the bowl of a mustard spoon; frequent inquiry failed to elicit any satisfactory reason for this shape. We were told in Oōshima that pins were made thus spoon-shaped so that the wearer, when boiling sugar—a universal industry in the Luchus—might always have at hand a convenient instrument for testing the consistency of the mass. This is, I am afraid, a little far-fetched, and I am inclined to believe that the pins were used thus on account of their shape, and not shaped on account of their use; a pin dripping with melted sugar can hardly be deemed a desirable ornament even to a Luchuan woman. The women of Cochin China wear a pin somewhat smaller, but almost identically the same as that worn by the Luchuan women.

The head-dress of the men also is quite different from the old-fashioned head-dress either of China or of Japan; the men and boys of all classes shave a space on the top of the head about two and a half inches wide, extending from an inch and a half back of the margin of the hair, in front, to the crown of the head. In arranging the hair, the side, back, and front locks are combed together up to the crown of the head, and there tied, tight and close, to the scalp; the wisp of hair thus made is about sixteen inches long, and is stiffened with oil until it will almost stand alone; the oil used is exceedingly thick, and has not an altogether unpleasant odor of oranges, infinitely better than the rancid, noisome cocoanut oil used by the Malays. When this spike of hair has been sufficiently slicked, smoothed, and pulled—a stage in the proceedings proclaimed by the expression of abject agony on the face of the victim (often and often in the street entirely devoted to their trade we used to watch the barbers at their work)—it is divided into two parts,

whereof the larger is bent into a loop about three and a half inches high, and the smaller is wrapped around the base of the loop, making a stump at least an inch high, with the loop on the top. This loop is bent backward and down upon itself, until what was its upper curve encircles the base of the stump. To hold all this in place a silver, nickel, or brass pin, with a head forming a five-petaled flower (I think it is a somewhat conventionalized blossom of the wild strawberry) is shoved from in front through the base of the stump and holds down the curve of the loop at the back, while a second smaller pin, slightly scoop-shaped, holds the loop down at the sides. This is the universal head-dress in Okinawa, and it is adopted by small

children even of four or five years of age.

The faces of the men are so mild and gentle in expression and the costumes of both sexes so much alike that for the first few days of our visit we relied upon this form of head-dress as the sole distinction



Fig. 1. Head-dress of the Men of Okinawa.

between young men and women ; as a general rule, the men are far better looking than the women. Perhaps this is due to the fact that the cares and worries of life have not so wrinkled and knotted the faces of the men as the faces of the toiling and moiling women.

It is the custom throughout the archipelago for the women to tattoo the backs of their hands. The patterns are shown in the accompanying illustrations which give the designs in the three sub-groups of islands. In Oōshima the central design on the back of the hand is not of a constant pattern, but is governed somewhat by individual taste ; in Okinawa, however, the designs are constant and unvarying, and, as well as we could ascertain, universal even among the women of the highest class. The meanings of these marks are vague in the minds of the

people, and of only a few could we get any explanation. In Okinawa the origin of the custom is traced to the earliest time in the following legend: The first woman who wove cloth on the island was exceedingly beautiful, and when commerce began to spring up between Luchu and Japan, the Japanese were so much pleased with the peculiar beauty of the cloth made in Okinawa, that they insisted that the weaver should be sent to Japan to instruct the people in the art. The Luchuan Council, fearing that the beautiful weaver would be claimed as a bride by some of the wealthy Samurai of "Dai Nippon," and the art be thereby lost, determined to make her less attractive, and to put on her a mark whereby she would be always recognized and reclaimed from the Japanese, in case of treachery. Her hands were accordingly freely tattooed, and she was allowed to go. The scheme proved a success; the black tattooing so cheapened her that she returned to Okinawa unmarried, and lived to a good and weaving old age. After her death she was elevated to the skies, made a goddess, and is still worshipped to this day in the city of Naha.

This legend we were told by Iwai San, to whom it was told by one of his intelligent Luchuan assistants; I am unable to say to what extent this story is current throughout the islands. It seems, however, that tattooing the hands has some connection originally with weaving; in the southernmost group of isles known as Myako-Jima, the assessment of the women depends on the tattoo marks on the backs of their hands. The assessment for the men is fixed according to the amount of millet or rice that each man can produce from his land, and a like taxation is levied on the women in accordance with the quality of fine linen cloth which they are able to make. There are about twenty grades or more of this cloth, determined by the difficulty of the pattern, and when a woman becomes proficient in weaving any one of the patterns, that pattern is tattooed on the back of her hand, and it is regarded as a great distinction and mark of honor to have difficult designs there tattooed as an enduring proof of skill. There may be, perhaps, only two or three women in a whole village with hands completely covered by these marks, but the thorn to the rose is that

with these proofs of her skill comes the increased rate of taxation.

In Oōshima there is, in addition to the marks on the backs of the hands, a peculiar design on the inner surface of both wrists; this



Fig. 2. Design on the Front of the Wrists, in Oōshima.

mark, according to the old woman who executes most of the tattooing in the town of Nazé, is a combination of several features, apparently totally at random, namely: the beak of a bird, the handle of a teapot, the tail of a fish, and the head of a turtle. These component parts, I think, can be easily seen in the accompanying cut, which is reduced one-half from a

tracing of the design made by this old woman.

The beak of the bird is on the end toward the left, the handle of the tea-pot curves outward below it, the tail of the fish is on the right-hand end, and the head of the turtle is the little flat-topped projection on top. The square-shaped design beyond the tail of the fish is always over the styloid process of the ulna, on the right hand, while in the same place on the left hand is either a round dot or a many-pointed star. The square is said to represent a bobbin whereon to wind thread. This same mark appears also in Okinawa on the back of the wrist, much larger and with more pointed corners, but the mark on the front of the wrist is

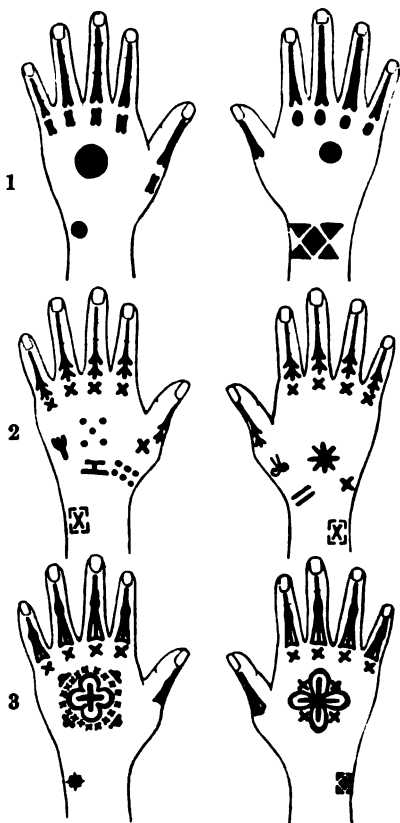


Fig. 3. Tattooing on Hands. 1. Okinawa; 2. Myako-Jima; 3. Oōshima.

omitted. The lines on the fingers represent bamboo leaves; for the design in the centre no explanation was forthcoming; it varied too much to have any fixed meaning (that is, in Oöshima; in Okinawa it is always a round spot, larger on the left hand than on the right).

In Myako-Jima the marks are said to be the patterns woven into cloth; on the backs of the fingers is the leaf of the bamboo, below this on the knuckles is the numeral ten; on the back of the wrist again appears the bobbin; on the back of the right hand are several footprints of a bird superimposed; over the knuckle of the thumb a pair of scissors, and below these, two parallel lines, representing *Fashi*, or chopsticks. In the centre of the left hand are five dots representing five balls of rice; below this a Luchuan tea-table, and to the left of the five central marks is a trident, whereby evil spirits are kept aloof; to the six dots on the base of the thumb no significance was given.

Tattooing is not common on any other part of the body, but it is not uncommon to see criss-cross marks on the legs, arms or shoulders of both men and women, which, they say, act as a counter-irritant to rheumatism. We noticed, however, several men and boys in the small fishing village of Itoman, on the island of Okinawa, who had the trident design tattooed on their right upper arms; in some, the trident was replaced by a slanting line, with three short, straight projections on one side of it, directed downward, like the teeth of a saw; this, we were told, had the same effect on evil spirits as did the trident, which was undoubtedly true.

The tattooing is always done by women, who make a regular business of it during the months of July and August, when the hard manual work in the fields is over for a time; the operation makes the hands so sore that hard work is impossible. The ink used is ordinary Chinese ink, moistened with *shoju*. The design is pricked in with a small sheaf of needles stuck into a piece of soft wood or stiff paper, and then wrapped with cotton thread until a handle of convenient size is obtained. The ink is put on thickly, and the needles jabbed through it into the skin until all of the design has been marked out; the ink is then washed off, and the lighter spots and patches touched up a second

time. The whole of the pattern is not worked in at one sitting, but a part of the hand is tattooed in successive years, beginning when the child is four or five years old, and continued until the whole is finished. The courtesans and the women who used formerly to act in the theatres were not allowed to be tattooed; they were not supposed to work, hence they must be distinguished from the workers, and they were allowed to put only two large dots on the first phalanx of the middle fingers of both hands.

Theatre-going in Luchu is the great diversion of the people, and, just as in Japan, the pleasure-seekers take their lunch with them and spend the whole day at the play-house, eating, drinking, gossiping with their friends, and apparently paying little attention to the acting, while children romp with one another, and not infrequently climb on the forbidden precincts of the stage. The arrangement of the stage and the plays is a curious mixture of the Japanese and Chinese; there is the same scene set for all plays, and herein it is like the Chinese, but in the careful costume and in the good idea of effective acting the Luchuans approach the Japanese school; furthermore, their plays are short and concise, describing some incident of Luchu history. All the lines are spoken, or rather sung, in a monotonous, chanting tone, letting the voice drop at the end of each line, but there is not the stilted, squeaky tones of the Japanese actors nor the obtrusive din of gongs and drums, which accompany all Chinese histrionic efforts; the voices are all mild and gentle, and the orchestra consists of a low-toned string instrument (the *Jamsing*, much the same as the *Samisen* of the Japanese), a flute, and a drum, which strike up a rhythmical march at the entrance or exit of the principal actors. Nowadays all parts are taken by men and boys; not more than three or four years ago, women also took part in the plays, but with the spread of Japanese power this was prohibited and women were barred from the "boards." We were told that the actors were a much despised class, on account of their dissolute habits.

The stage is **T**-shaped, like what is technically known as a *Tau* cross, in which the transverse bar is about the same length

and width as the leg, which is directed toward the audience. The two arms of the transverse are used chiefly for the exit or entrance of armies or bands of retainers accompanying the feudal lords. On the right the arm is divided in the centre by a rustic bridge, which is supposed to pass over a rushing river; on the left there are a few genuine gnarled trees, which represent a grove. At the back hangs a broad curtain, beneath which corpses roll themselves when they have lain long enough on the stage to give the audience a realizing sense of their deadness, and from under this same curtain ghostly arms clad in black sleeves appear and remove fallen hats, or broken spears, after an affray. On each side of this curtain are doorways also closed with curtains. Through these, the majority of the players have their exits and their entrances, and they serve as the doorway to a hut or to a castle, without so much as the suggestion of a difference in the shade of color of the hangings. At the end of each play a boy hangs on one of the front pillars of the stage a wooden placard whereon is painted the name of the next play; this is the only play-bill furnished.

The theatre buildings are very ramshackle affairs, enclosed only as high as the eye-line of the passers-by in the street, and poorly roofed in overhead. The rafters and supporting pillars are, however, elaborately decorated with dingy, painted dragons, snakes, phoenixes, and pink peonies, in accord with things Japanese and Chinese. On the bare floor, or on thin mats here and there spread, the audience squat and indulge in tea and cakes, or sip hot *shojū* from little pewter cups no bigger than a thimble, all the while talking in a steady stream, apparently paying no attention whatever to the play.

The costumes are evidently the remnants of a very early day; they are neither modern nor old-style Japanese, and do not resemble any costume of China that I have ever seen; indeed, they look more like the costumes of Persia or Burmah; elaborate turbans and head-cloths are often a marked feature.

High dignitaries are always followed by a chair-bearer, or rather stool-bearer, who is invariably at hand to place a stool beneath his lord, before he addresses the rabble. In sitting down the lordly being assumes a position like the Chinese—that

is, with knees wide apart, hands resting on the knees, and toes turned out; the common people take the usual Luchuan sitting posture, which would be cross-legged were it not that one knee is elevated, as if they were about to rise. Taken as a whole the theatrical performances are far more comprehensible than the Chinese, but inferior to the Japanese in scenic effect and dramatic power, although the gentle modulation of the voices make them decidedly more agreeable to the ear.

The *Jamsing*, which plays such an important part in Luchuan life—it is played only by men—is in shape similar to the *Samisen* of the Japanese, and is tuned in the same manner, only at least an octave lower. The great difference between these instruments in Luchu and in Japan is that in Luchu the drum or body is covered with snake skin (that of the *python reticulatus*—probably imported from China), while in Japan cat skin is invariably used. The tunes which I heard were melodious, and played in perfect time to the dancing which was going on. The dancing is in the same style as the Japanese; slow, graceful movements, which represent in some inexplicable manner the seasons of the year, sunshine and clouds, ripening fields of grain, etc., etc. It is next to impossible for our Western minds to follow all the veiled significance of the Eastern dances; every wave of the hand, every movement of the fan means to them an emotion of the heart or a cry of nature. In former times there were no *Geisha*, or Dancing Girls in Luchu; the theatres with their actresses took the place of private dances; now, however, with the Japanisation of everything else in the island, this important class must not be overlooked, and several Luchu girls with talent have been educated in Japan as *Geishas*, and nowadays perform, for a “considerable consideration,” the old-fashioned Luchu dances, which heretofore have been relegated exclusively to the playhouse.

The theatres, however, are not the only diversion of the people; each little village has its own amusements in the shape of horse-races, “tugs-of-war,” and, where there is opportunity, boat-races. The horse-races are, perhaps, the favorite pastime, and every small village is provided with a public square or race-ground, whereon the people meet and gossip of an evening

and where the races are held. Luchu races are problems even to the Japanese governor, Narabara San, who has lived many years in the islands, but acknowledged to me that, although he had witnessed these races many and many a time, he has never yet been able to fathom what exactly constitutes a victory. The riders, possibly twenty or thirty in number, arrayed in fantastic and gayly-colored costumes, assemble in the public square or race-course (which is a level spot of ground, usually about a hundred yards square, hedged in with pine trees, which serve both as a boundary and also as a shelter for spectators) where they ride hither and thither, zig-zagging from one side to the other. When two or three riders come abreast, seemingly by chance, they start off at a gallop, but the one who apparently outstrips the others in the race may or may not receive the prize. Even the Luchuans whom we asked seemed to be somewhat doubtful in their minds as to what constitutes a victory; it rests probably on a number of fine technical points in the equipments of the horse and rider; possibly on the same delicate lines which dominate the negro "cake-walk."

Boat-races were another form of public amusement in the old feudal days, but of late years are gone out of fashion. The best races were held in the harbor and canals of the city of Naha, where all the citizens of that city and of neighboring villages, divided their interests in three clubs, named the *Tomari*, *Kumimura*, and the *Idzumizaki*. The boats were manned by thirty-six men each, eighteen on a side, while down the middle, between the rows of paddlers, was a passage wherein were stationed three men, whose duty it was to walk back and forward, encouraging and exhorting the crew to put forth their best efforts. The bows of the boats were decorated with large carved wooden heads of dragons, and from the stern issued the dragon's tail; from three masts floated the colors of the club to which the boat belonged. The captain of each crew sat upon the nose of the dragon figurehead, and kept up a constant beating on a gong. The prize was awarded to the winning boat by the government, and local history reveals that these races always end in a free fight.

"Tug-of-war" contests are also popular sports with the

Luchuans of the rural districts, and we were told that the men from different villages, and also men of different factions in the same village, entered into these contests with the greatest ardor. For each of the two opposing parties enormous grass ropes are twisted at least eighteen inches in diameter, with a large loop at one end and with side ropes which can be grasped. The opposing parties, fifty or more in number, camp opposite each other all day, stirring up rivalry and excitement by gibes and sneers. At midnight, the loops on the ends of the two ropes are brought together and interlocked with a stout pole. At a given signal the tug begins. The point, marked by a flag, beyond which the pole must be dragged to constitute a victory, is only a few feet from the start, but those few feet are fought for with the zeal of desperation. The laggards and the lazy ones are kept up to their work by a force of exhorters, who, in addition to their sharp tongues, wield flaming torches, wherewith they singe the legs of those whose sinews are not sufficiently strained. Women do not join in, but stand by and "rain influence" with smiles and cheers, although from appearances I should think that the women could pull harder than the men. When the pole has passed the line, the victors, with a wild rush, invade the territory of the vanquished, and the night ends in revelry at the expense of the defeated.

Of children's games there seemed to be but few. Kite-flying is said to be very popular at certain seasons, just as it is in Japan; it has been, no doubt, imported from Kagoshima, the nearest Japanese port. Whip-tops also have their seasons of popularity in the youthful Luchuan life, and in the same unaccountable manner as in our streets, they suddenly become the fashion, and every small boy knows instinctively just when the season for spinning should begin. The tops are all home-made, whittled out of hard wood, or, better still, carved out of coarse white coral; this latter material is quite an innovation in tops, but then it is always ready to hand in these islands, so largely composed of coral, and when soaked can be cut like clay, and then hardened by drying until it is like a stone, and very light withal. The whips are just what any boy might devise—nothing more than

a stick of wood or bamboo, with two or three strips of cloth bound on for lashes. We saw no peg-tops, such as are so popular in Japan ; but then, perhaps, we were not there in the right season.

The game which seemed to be in season, at the time of the year that we were in the Luchus was what is known here as *Tip-cat* ; the boys of Oöshima call it *Teng* and in Okinawa it is called *Gicho* ; it is played, however, somewhat differently from the way in which we play it here. The short piece of wood, known here as the *cat*, or *pussy*, is cut off obliquely at one end instead of pointed at both ends as the American boy makes it, but nevertheless the principle remains the same. In starting the play the *cat* is laid upon the ground with the oblique surface downward and then with a quick rap of the bat it is tilted up and caught in the left hand ; this requires more knack than appears at first sight, and failure to make this catch loses the turn for the batsman. The bat is now laid down and the *cat* passed over to the right hand and thrown into the air about three feet ; while it is in the air the bat is snatched up and the *cat* struck before it falls. The fielder tries to catch the *cat* on the fly, whereby the batsman forfeits his turn ; failing to catch it, the fielder picks it up and throws it toward the batsman, who again strikes it and then measures off the distance to where it has fallen, in so many lengths of the bat ; this constitutes the score. The fielder has the right to confuse the batsman by throwing in to him two pieces of wood like the *cat*, and the batsman must distinguish between the right and the wrong piece ; if he strikes the wrong he loses his turn.

The game is not played in Japan, as far as I can ascertain, except in the town of Kumamoto in the island of Kyusiu, where, according to Mr. Culin's paper read before The Antiquarian Society of Philadelphia, the game is called *In ten* (very similar to the name "teng" by which it goes in the northerly group of the Luchus). Mr. Culin's informant, Motochika Tsuda San, inclined to the belief that the game was introduced from Korea by the followers of General Kato who took an important part in the campaigns against Korea about eight hundred years ago. It seems more probable, however, that the

game is of Chinese origin; it is not known at the present day in Korea, and Mr. Culin also is authority for saying that it is played in Hoshan, in the province of Kwantung, China.

In the island of Oöshima, we watched, unobserved, a group of three or four small girls playing a game with little flat discs of baked clay and from what we could see of the game (we were unable to talk to the little players) it looked like a modification of the game of marbles. We found out afterward that the game is called *Hajiki* (which means in Japanese *to snap with the fingers*) and that it is played in Japan also under that same name. The game was started by each player throwing down three or four of these small checkers upon the ground, and the one to begin was selected by the "counting-out" game which they call *Mushi-ken*, or the "insect game," in which the forefinger represents a snake, the thumb a frog, and the little finger a snail. If one player holds up a thumb and the other player a little finger, the little finger loses because the frog can eat the snail, and the loser drops out of the contest; likewise the snake beats the frog, but the snake is beaten by the snail, because the snail can crawl into a hole where the snake cannot get at him. The winner in "counting-out" starts the play with the checkers by drawing a line with her thumb nail in the ground between two of the checkers; this is only to indicate which two are in play. With her thumb she snaps one checker at the other; if she hits, she takes up the one that was hit, and again draws a line between her checker and another of the opponents, and keeps on snapping until she loses her turn by a miss. The distance was never more than four or five inches, but unevenness in the ground often makes the shots difficult.

We stood over the little group for some time, as I say, unobserved, so intent were they in their play; but one of the group suddenly caught sight of us and with panic-stricken faces they gathered up their checkers and ran. A few coppers, however, induced them to resume their places, and at the end of the game they gave us a handful of the checkers.

The game of *Hama-nage*, which is played by the boys in Korea, Japan, and Luchu, is nothing more nor less than the game of "hockey," familiar to all boys of Europe or America.

The game which is no doubt responsible for many a scolding of the small boy for unpunctuality at school is *Chang koro*, and worse yet, it is a gambling game. It seemed to consist solely in trying to turn over the counters, made of small bivalve shells, by flinging down another shell so as just to hit the opponent's shell on the edge. The shell which is thrown must, after accomplishing its object, land on the ground with the concave side down; if it fail to do this, it must be left until forfeited by the other player or redeemed by its owner. The shells represent so many copper *cash* or Japanese *sen*.

We were told that the young men occasionally engage in boxing bouts, with bare knuckles; all blows are struck with the right hand, while the left is used solely as a guard. Clinching and wrestling for a fall are considered legitimate features of the sport. *Rokshaku* is another manly sport of the order of single-stick, with a staff about six feet long. *Non-shaku* is played with a stick about three feet long to which is attached a rope. The object of this game is to disarm the opponent by whipping the stick out of his hands.

With these games and sports the youth of the islands pass their time, and, from all that we heard, they seem to spend never a moment in social intercourse with the gentler sex; wooing and love-making do not enter into their lives; there are no love matches in Luchu. Courtship and marriage are things entirely beyond their ken and are managed by their parents. When a son has reached the age of six or seven, the parents look around them, and from the children of their town-folk select a future bride suited to their son's station in life and worthy to become their daughter. Through some middleman the boy is offered to the parents of the girl as a suitor; if he prove acceptable, a day of good omen is selected, known as the *kichi-nichi* (lucky day), and on this day the contract is made and the boy's parents send a present to the parents of the girl, but neither of the principals knows anything of all these arrangements for their future happiness. When the boy has reached the age of eighteen and the girl is about fourteen or fifteen, a present is again sent to the parents of the bride; this present among the wealthy classes is usually a large sack of rice and

one "yen" (a Japanese dollar) in money, but among the poorer people, who can ill afford to lose the services of their daughter, the present must be much larger, and ten or twenty "yen" is the usual price paid to the parents of the bride.

On the marriage day the bridegroom, dressed out in his best clothes and accompanied by a crowd of his friends, sets out on foot for the bride's house. At the same time, from her house, a crowd of her friends walk out to meet the groom half-way, and as they walk they ring bells and make all kinds of din and bring with them the figure of a horse's head made out of bamboo; this they fasten in front of the groom, and for the rest of the way he must pretend to ride to the bride's house. The only explanation of this horse-play, that we could get, was that it was to give the marriage more publicity and thereby prevent bigamy. There is, however, a legend that, once upon a time, an *Anju*, or chief, committed polygamy to such an extent that at last the boys of the village waylaid him as he was going to the house of an additional bride and fastened on him a hobby-horse, and made him walk with a broken umbrella over his head. This made his offence so public, and so humiliated him, that he remained faithful to his last bride and sinned no more. There is just a shadow of possibility that this custom is related to an old Korean legend which Mr. Culin mentions in his valuable book on *Korean Games* (p. 32), wherein he states that the "*Wa Kan San sai dau e* relates that T'au Hien, of the later Han Dynasty (A. D. 25-221), when fourteen years old, made himself a flag, rode on a 'bamboo horse,' and played. Kan Kung observed his appearance, and admired it, and granted him his daughter as a wife. His wife indignantly said: 'The boy of the T'an family plays too much. How can we give him our daughter?' Kan Kung replied: 'He has a noble aspect, which certainly presages great success,' and he gave him his daughter." The same book states that boys of seven years of age take pleasure in the bamboo horse.

When the groom reaches the house of his bride, a great feast is prepared and he pledges his mother-in-law in a cup of *shojū*; after the feast he returns to his home, but again visits the bride shortly after dark, accompanied by all his family and servants.

Again a feast is held and they all make merry until the small hours when every one in the town is asleep; both families then visit the groom's house, and here the marriage ceremony is completed by the exchange of cups of *shojū* between the bride and groom, and the bride also drinks with her mother-in-law. The ceremonies are concluded by the bride and groom reclining together on a couch for a few minutes; this is known as *misu-mori*. That same night, or rather morning, the bride returns to her father's house, and the husband and his friends go to a certain quarter of the town set apart for the hetairæ, and remain there for three days and nights. Among the higher classes, however, it is customary for the bridegroom to go to some secluded house in the country and there drink and make merry for the prescribed three days. This custom is said to dispel all feelings of jealousy on the part of the wife and inure her in advance to her husband's possible future failings. When the three days are over the bride goes to her husband's house and begins housekeeping, or rather assisting her mother-in-law, for the whole family live together until the death of the father.

These marriages, thus strangely contracted, are not, as might be readily supposed, always happy unions, and divorce in the first few months of married life is by no means uncommon, the most frequent pretext for it is ugliness of the bride, and I must acknowledge this did not surprise me; but this is not a legal ground, and if the couple manage to endure each other for a year or more only the gravest misdemeanors of either husband or wife will induce them to separate.

First cousins may marry, provided they are the children of brothers, but the children of sisters may not marry; being insular people, among whom a certain amount of intermarriage is inevitable, this rule concerning the marriage of cousins is particularly interesting anthropologically; undoubtedly experience taught them that the marriage of the children of brothers does not produce a deformed or weakened progeny. In the island of Oōshima (where I am not sure that this rule is enforced) we observed, it is true, a great many children afflicted with hare-lip, but in Okinawa, where this rule obtains, the

inhabitants one and all seemed to be particularly strong and healthy.

In the burial customs and the observances of mourning there is no doubt a great proportion that is borrowed from the Chinese and the Koreans; but since all things are changing under Japanese influence, it is, perhaps, worth while to record here what we heard and saw of these customs during our stay in Great Luchu.

When a husband dies, the widow continues to live in the house of her father-in-law, but she retains the property that her husband left, and, unless she is very young, or of the very poorest class, does not marry again. For fifty days after the death of her husband, the widow discards her metal hair-pins, and wears pins made of bamboo, and adopts a mourning costume of white cloth. When the body has been laid in the family tomb, the door of the vault is sealed up, and in the small enclosure just outside, a thatched hut is built wherein the widow or widower lives secluded for seven days, eating barely enough to sustain life, and mourning incessantly in the most extravagant manner. We were told that it was not an infrequent occurrence for widows to die of grief while mourning in these little huts outside the tomb. For fifty days after leaving the hut at the tomb, the mourner, either widow or widower, remains at home in absolute seclusion, never leaving the house except early in the morning and after dark in the evening, when a visit is paid to the tomb. On these occasions the mourner is draped from head to foot in a grayish-white cloth, and must be attended by some near relative as a guide. At the expiration of these fifty days the bamboo pin is changed for a wooden one, and the daily visits to the tomb are discontinued; it is customary at the end of this period for the widower to mingle with his friends once more; but a widow remains in seclusion for the rest of her life. For three years no pin but a wooden one can be worn by man or woman, and the clothing must be of white cloth until the ceremony of washing the bones in *shojū* has been performed. On the third anniversary of the death, the tomb is opened, and the assembled family clean and wash the bones in *shojū*, and place them in a separate

urn on a shelf at the back of the inner room of the vault. The hair-pins which were buried with the corpse are at this time removed and made over again for the younger members of the family, but a father's pin is the direct inheritance of his son, and is not re-made.

Burial takes place from twelve to twenty-four hours after death, and during the time that the corpse is in the house, and while it is being taken to the grave, the relatives and dear friends indulge in paroxysms of grief, which are conducted in the most theatrical and extraordinary manner. As soon as it is evident that death is near at hand, the eyes of the sufferer are closed, and so held until life departs; then the family at once put on clothes made of banana fibre, of a yellowish color, and the lamentations begin. In the burial of the better classes thirteen *kimonos* of silk (a material worn in the Luchu islands only at marriage and after death) similar in shape to those worn by the Japanese, except that they are a little shorter in the skirt, are put on the corpse, one over the other, varying in color from white, which is always the outermost, to red, blue, green, yellow, and purple. The peasantry put on only seven. On top of the coffin are placed the sandals last used; a small and prettily-made bag, containing all the teeth which have dropped out during life, and have been carefully preserved; also the parings of the nails just before death; in addition to these the body is provided with a pipe and tobacco-pouch, a teapot and some cakes, and a towel. On the day of the funeral the friends and relatives assemble in the house, and, sitting round the coffin, they utter loud lamentations, and seem to vie with each other in giving vent to the most abandoned grief.

One day, while strolling through the dwelling portion of the town of Naha, our attention was arrested by seeing a crowd of men all clad in the yellow banana-fibre clothes of mourners, and, hearing prolonged wailing in a house near by, we stopped to see what we rightly conjectured to be a funeral procession. We stood a little to one side, and soon the procession appeared; first came two men with flat drums and large brass cymbals, which they beat lustily, and following them were two children weeping and wailing in such an agony of grief that they

had to be supported by an attendant on either side. These children were the heirs of the deceased, and for children so young they were really adepts in the art—for it is an art in Luchu—of mourning. Behind them came the hearse, or *Gan*, carried on poles on the shoulders of four men. The *Gan* is about four feet long by three feet wide, and has latticed sides and a roof like a temple or a Chinese pagoda, with bells at the four corners; it is the property of the town, and is loaned as occasion requires. The dimensions may seem small, but then it must be remembered that, except in the upper classes, the usual position in which bodies are buried is with the knees drawn up to the chin; this position is also frequently adopted in burials in Japan.

Behind the *Gan* staggered four chief mourners, clad in the yellow of mourning and wearing on their heads flat straw hats about two feet in diameter. Each of these mourners, bent with woe, had two men to support and almost drag him along; genuine tears accompanied the woe-begone facial contortions, and not only coursed down the cheeks, but also flowed freely through the nasal ducts, producing a flow of mucus many inches in length, which, although a sight to us most repulsively intolerable, to the Luchuan mind is the very efflorescence of abysmal woe. Professor Chamberlain states that these men, thus proficient in the art of "crying through the nose," are professional mourners, and are only hired to attend funerals. Although this was indignantly denied by two Luchuans whom I interrogated, I am inclined to take Professor Chamberlain's version of the matter. It must have taken years of practice to produce the astounding results obtained by these four mourners in this one instance.

Behind the professional mourners (let us call them) staggered five or six women, the members of the immediate household of the deceased, completely hidden beneath veils of banana-fibre cloth, so that their faces and the method of their crying could not be seen. They, too, had to be supported by attendants, and what was presumably lost in the way of nasal tears was made up in loud and prolonged wails issuing from beneath the draperies. A crowd of friends clad in mourning robes solemnly and decorously brought up the rear.



Family Tombs, near the City of Naha.



The Gateway of Propriety.

PLATE 1.

At the tomb a priest of the *Zenshu* sect of Buddhism (the religion of Okinawa) says a short prayer and rehearses the many good qualities which the corpse is sure to have had during life, and the body is laid to rest in the family vault, with the head pointing toward the north.

I would not be for a minute understood as dealing lightly with any ceremonials wherewith our common humanity accompanies grief; I therefore add that it is quite possible that portions of our own solemn funeral ceremonies might, in turn, strike the Luchuan mind as savoring of insincerity, or even of absurdity. For instance, as this funeral procession passed, we took off our hats to show our respect; but the action was greeted by a group of small Luchuan boys nearby with laughter and derisive jeers.

The whitewashed tombs form one of the most characteristic features of the Luchuan landscape, dotted as they are, here and there, in every direction, through the fields wherever sloping ground furnishes a favorable locality for excavation. Architecturally, they are no doubt derived from the Chinese, but they are perhaps made with a little more care than is generally seen in China, except in the cemeteries near large cities. The roof the vault, which is dug out of the side of a hill, is horse-shoe shaped in outline, and is higher in the middle and in front than it is at the sides; in front of the door is a sunken yard, walled in on all sides, and in the centre of this is a slab of masonry or of solid stone about four feet high, six feet long, and one foot thick, forming a sort of screen in front of the opening in the tomb proper. Inside the vault there are two rooms with low stone shelves on all three sides, whereon the jars containing the bones of the deceased are placed. The opening into the vault has no door, but is loosely walled up. On the outskirts of the city of Naha there is an extensive collection of these tombs, but otherwise there seems to be no regular cemetery, and every man builds his tomb wherever he happens to have ground, and the fields are cultivated to the very edge of the vaults wherein "the rude forefathers of the hamlet sleep." There is nothing which a Luchuan holds in greater reverence than the family tomb, and the usurious money-lenders take

advantage of this sentiment, and never refuse a loan where the family vault is offered for security.

This is but a very brief outline of what might be written of this gentle, little, secluded community who live and die in peace, while the rest of the old Eastern World, which we seem just at present to think is new, is squabbling and fighting both at home and abroad. On account of the exquisitely peaceable nature of the people one of the Chinese emperors christened the country "The Land of Propriety," and, duly proud of this title, the king caused to be built outside of the royal city of Shuri a great gateway, which to this day is called the "Gate of Propriety."

With the advent of Japanese civilization and the contentions which inevitably follow reforms may the name still remain appropriate, and no improprieties of "trade's unfeeling train" ever pass beneath that gateway!

PERSONAL ORNAMENTS FROM BENIN.

BY HY. LING ROTH.

Before the capture of Benin city, a few, a very few, specimens of Bini art had found their way into the surrounding country. Among this few may be mentioned a fine bronze statuette of a chief, or king, on horseback, formerly in the possession of Mr. James Pinnock, the West African trader, who had obtained it through his agent, the late Mr. Swainson, direct from Benin, and some bracelets and ceremonial staves, obtained near Warri, by the unfortunate Major Copland-Crawford. The Major was, like many others, under the impression that the articles he possessed were made by the natives of the interior, and not by the people of Benin. Indeed, like the rest of the world, he had no reason to think that the Bini had been the wonderful art-producers we have since discovered, and was in complete ignorance of the riches held in concealment by a system of fetishism only second in brutality to that which reigned in the city of Mexico at the time of the discovery and

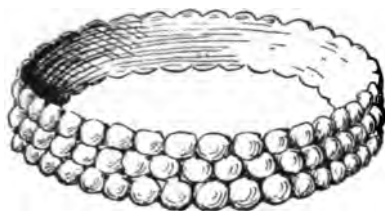


Fig. 4.—Cat. No. 21,157, Museum of Science and Art.— $\frac{1}{4}$.

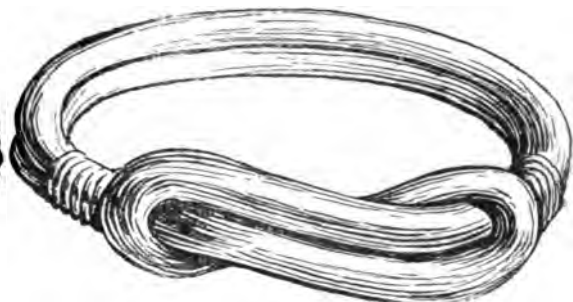


Fig. 5.—Cat. No. 21,151, Museum of Science and Art.— $\frac{1}{2}$.



Fig. 6.— $\frac{1}{4}$.



Fig. 7.—Cat. No. 21,156, Museum of Science and Art.— $\frac{1}{4}$.



Fig. 8.—Major Copland-Crawford Collection.— $\frac{1}{4}$.



Fig. 9.—Cat. No. 21,152, Museum of Science and Art.— $\frac{1}{4}$.

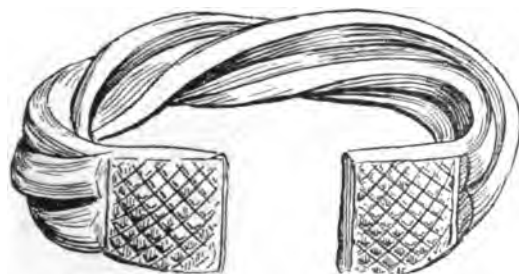


Fig. 10.—Miss M. H. Kingsley's Collection.— $\frac{1}{4}$.

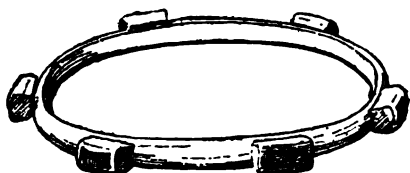


Fig. 12.—Major Copland-Crawford Collection.— $\frac{1}{4}$.

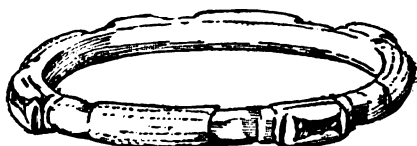


Fig. 13.—Major Copland-Crawford Collection.— $\frac{1}{4}$.

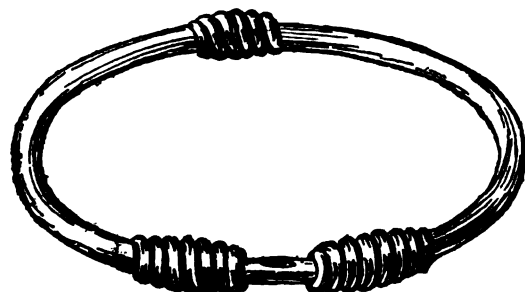


Fig. 11.—Cat. No. 22,165, Museum of Science and Art.— $\frac{1}{4}$.

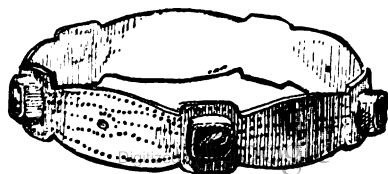


Fig. 14.—Major Copland-Crawford Collection.— $\frac{1}{4}$.

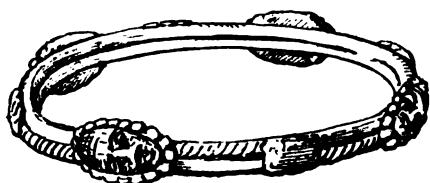
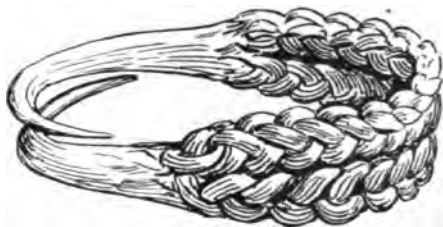
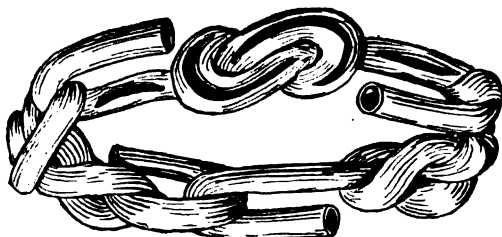
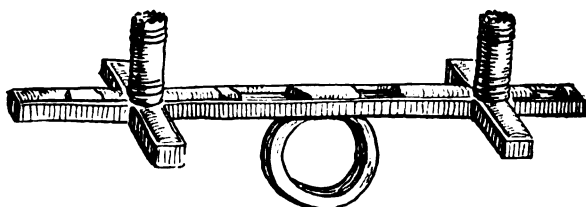
Fig. 15.—Major Copland-Crawford Collection.— $\frac{1}{2}$.Fig. 16.—Miss M. H. Kingsley's Collection.— $\frac{1}{2}$.Fig. 17.—Cat. No. 21,158, Museum of Science and Art.— $\frac{1}{2}$.Fig. 18.—Cat. No. 21,158, Museum of Science and Art.— $\frac{1}{2}$.Fig. 19.—Miss M. H. Kingsley's Collection.— $\frac{1}{2}$.Fig. 20.—Miss M. H. Kingsley's Collection.— $\frac{1}{2}$.Fig. 21.—Cat. No. 21,168, Museum of Science and Art.— $\frac{1}{2}$.

Fig. 22.



Fig. 23.



Fig. 24.

Cat. Nos. 21,160-62, Museum of Science and Art.— $\frac{1}{2}$ by Google

conquest. In other papers¹ I have referred to some examples of Bini metal and toreutic work, and in the present paper I propose briefly to describe some of the people's personal ornaments, mostly of the bracelet order. The chief feature of these articles is their variety, yet the specimens illustrated are by no means specially chosen, but are only such as have come under my immediate notice. Another feature is the play upon the patterns; thus in Fig. 4, we have the same pattern as in No. 6, but adapted in a different way, and at the same time reduced so that we get quite a different bracelet. Similarly with the bracelets Figs. 9 and 10; here the large loop which forms almost one-third of Fig. 5, is reduced, multiplied and set on vertically, instead of horizontally, with the result that quite a different ornament is produced. Spirals, as a basis for design, are not uncommon; in Fig. 8 we have a spiral or coil in its simplest form; in Fig. 9 we have a double coil which itself is formed of an alternate spiral of copper and brass; in Fig. 10 the adaptation of the set of angular spiral is quite a novelty, while in Fig. 11 the spirals are set on the ring at intervals. Some of the bracelets are furnished with studs set with agate or coral, which appears to be fixed in position by some sort of mastic or gum; Fig. 13 is very similar to Fig. 12, but has barrel-like enlargements between the studs; the body of Fig. 14 differs from those of Figs. 12 and 13 in being flat inside and out, and in being wider, while the other two have the body flat inside and convex outside; in Fig. 15, which appears to consist of two rings soldered together parallel, the place of the stud is taken by four heads surrounded by beads, and four guilloche patterns (very faint) placed alternately. Fig. 16 represents plaited work, a very common form of ornamentation in Benin and West Africa generally. The hoop represented in Fig. 17 may not be a bracelet at all, but may form part of a chain, as there is in this collection another ring of the same pattern, but oval in shape; the ornamentation, a sort of debased fish scale, is the same on both sides.

¹ "Examples of Metal Work from Benin." Halifax (Eng.) *Naturalist*, June, 1898. "Notes on Benin Art," *The Reliquary*, July, 1898. "Toreutic Work from Benin," *The Studio*, forthcoming.

So far we have practically no reference in the ornamentation to the fetishism of the Bini, for the snake heads in Fig. 9 may or may not be anything beyond a desire to finish the ends artistically; however, in Figs. 18 and 19, two of the symbols of the natives' belief form the motif of the design, in the former as the double catfish, in the latter as catfish (usually snakes) issuing from the nostrils of a human face. This bracelet (Fig. 19) is of copper, and overlaid (excepting the two faces and catfishes) with a brass plate about one millimeter thick and is massive and rough; the catfishes are fixed on by means of holes drilled in the nostrils and into the sides of the forehead. Extremely curious is the bracelet (Fig. 20) apparently made of short pieces of copper tubing soldered into the form of a chain and furnished with slits; as the bracelet passed through the conflagration which destroyed the city it is not now possible to ascertain what had been inserted into these receptacles. A very curious finger ring is illustrated in Fig. 21. It is inset with agate along the central horizontal position and carved coral along the crosspieces; the upright cylindrical pieces, like the pin (Fig. 23), are hollow at the top for the reception of some inset, and originally it may have been glass, as in the top of pin (Fig. 22). Dr. Forbes (*Bulletin of Liverpool Museum*, I, 59), in describing the spots of a leopard, says they are filled in with a "yellow poroellaneous glass or enamel and applied in a fused condition;" if such be the case, the Bini must have had a knowledge of the making of enamel, but I think further inquiry will prove that the insets in the leopard spots are glass. The pin (Fig. 24) is inset with coral. What the porpoise-like article shown in Fig. 25 is meant to be is not clear; it may be a pendant to wear suspended from the neck and perhaps was intended for a whistle.

A few gold-plated ornaments have been found in Benin, but, so far as I am aware, only two gold ornaments; this is strange, for surely plating is a more difficult process than casting or working; possibly, however, the plating may have been done elsewhere. Fig. 26 does not call for special remark beyond referring to the neatly-finished points. In Fig. 27 is represented a pendant, perhaps of fetish value; the lizards are con-



Fig. 25.—Cat. No. 21,164, Museum of Science and Art.— $\frac{1}{2}$.



Fig. 26.—Dr. Allman's Collection.— $\frac{1}{2}$.



Fig. 28.—Dr. Allman's Collection.— $\frac{1}{4}$.



Fig. 27.—Dr. Allman's Collection.— $\frac{1}{4}$.



Fig. 29.—Dr. Allman's Collection.— $\frac{1}{4}$.



Fig. 30.—Ivory. R. K. Granville's Collection. 130 mm. high.



Fig. 31.—Ivory.

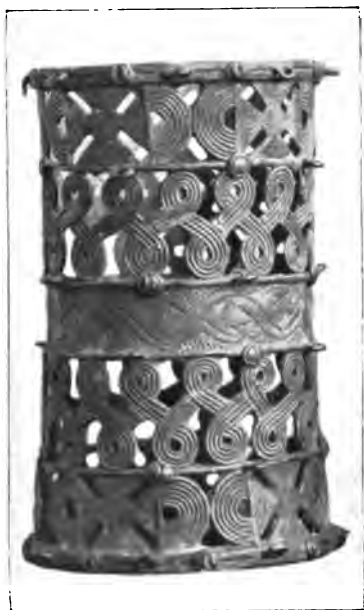


Fig. 32.—Brass. R. K. Granville's Collection. 145 mm. high.



Fig. 33.—Brass.



Fig. 34.—Brass. Roughly Cast. Miss M. H. Kingsley's Collection. 90 mm. diam.; 136 mm. high; 2 mm. thick.



Fig. 35.—Unfinished. Brass. Miss M. H. Kingsley's Collection. The three discs evidently waiting for the enchanter. 89 mm. diam.; 136 mm. high; 1 mm. thick.

cave underneath, as shown by the section ; the hawk's bill is attached to the lizards by means of a curious ring shaped out of a thin piece of metal rolled up into the shape of a tube, the ring being closed by the insertion of one end into the other. Figs. 28 and 29 appear to be pendants. The gold ornaments brought home by Dr. Allman were a "bracelet formed by a double-headed snake grasping between its jaws a decapitated human head and a snake about nine inches long."

While the workmanship of the articles illustrated is, generally speaking, good, it is not, as a rule, equal to that of the large Bini metal work ; this is no doubt due to the greater difficulty presented by the smaller surfaces on which the artisans have have had to work.

We now come to a curious class of objects—namely, long armlets and leglets which are so fashionable in West Africa. They are made of carved ivory (Figs. 30, 31) of brass (Figs. 32, 33, and 34), and of copper with some of the masks in brass (Fig. 35). It is said these articles are put on when the individual is quite young and are said not to be taken off until death, if then, but when taken off in that event the foot or hand has frequently to be chopped off first. The ivory bracelets are old and much worn down, that illustrated in Fig. 30 especially so. In Fig. 31 an European is depicted as indicated by the beard ; the three heads shown alternately with the tortoises in Fig. 30 are also meant to be those of Europeans, but, looked at from the left side, they look like bullock heads, the side hair developing into horns. Fig. 32 is an elegantly finished production and a good example of Bini art, and is provided with loops for the hawks' bills which turn up everywhere in unexpected places throughout Bini metal work. The bracelet (Fig. 31) is interesting as exhibiting a conventionalized leopard's face on the top as well as a European's face at the bottom likewise developing into a form of ornament. In bracelet (Fig. 35) some of the disks are blank, evidently awaiting the enchanter's tool ; it also shows a hawk's bill in situ. The variety of design is in all these forms manifest, indeed, it is a feature in the art of the Benin natives which any of our jewelers might do well to copy.

THE NEW BABYLONIAN EXPEDITION OF THE UNIVERSITY OF PENNSYLVANIA.

BY PROF. H. V. HILPRECHT.

On May 19, 1898, I left Philadelphia for Constantinople, in order to secure a firman for new excavations at Nippur, and to arrange certain other details with the Ottoman government, to continue my work on the catalogue of the Babylonian and Assyrian collections in the Imperial Archæological Museum at Stambul, and to resume my former scientific investigations in the western provinces of Asia Minor, taking the Kizil-Irmak (the ancient Halys), as the eastern boundary of my exploration tour. It gives me great pleasure to state that the object of my mission was accomplished, and that in every respect my summer vacations were spent successfully in different parts of the Turkish empire. As in former years, the Ottoman government, and the administration of the Imperial Museum facilitated my work in many ways, for which they deserve my warmest thanks. The new firman for excavations in Nippur was granted so speedily to the present writer that a fortnight after his arrival in Constantinople he was enabled to send this important news to the United States.

In Philadelphia, meanwhile, at the initiative of Mr. Clarence H. Clark, and chiefly through his and the late Dr. Pepper's effort, a small number of generous and intelligent citizens, whose names will be found elsewhere, had again furnished the necessary means for a two years' campaign in Babylonia. The new expedition was soon organized, and placed in charge of Professor H. V. Hilprecht, as scientific director, and Dr. J. H. Haynes, who directs the operations in the field. In the course of 1899 the former is expected to join the latter in Babylonia, in order to subject the different strata to a critical examination, and to settle, if possible, a number of vital archæological and chronological questions by a personal inspection of all the trenches and what they will have yielded.

As before, a Philadelphia Home Committee, of which

Mr. E. W. Clark is chairman, advises the members of the expedition, supporting and encouraging them in their efforts, and controlling their movements and actions abroad. Two architects—Mr. Gear, a young Englishman, who for a short while had been in Babylonia before, and Mr. C. S. Fischer, of Philadelphia, a graduate of the Department of Architecture at the University of Pennsylvania, were appointed on the staff of the expedition. Towards the end of September Dr. Haynes and the latter left Philadelphia, found Mr. Gear in London, where the necessary outfit was completed, and in accordance with instructions from the Home Committee, came to Southampton, to meet the writer, who was just returning from Asia Minor. On October 9th a final consultation of the directors and members of the expedition was held on board of the North German Lloyd steamship "Koenigin Luise," the exact route, date of departure and other details being definitely decided upon.

The same night I continued my voyage to New York-Philadelphia, in order to devote the winter to the reorganization of the Babylonian section of the new University Museum, and to the preparation of two more volumes of the expedition publication. Shortly afterwards the other members of the expedition went to France, boarded the "Arabistan" in Marseilles, arrived at Port Saïd on November 7th, entered the Suez Canal the same day, reached Aden, in South Arabia, about the time when the great Austrian expedition to Shabwa (the ancient capital of Hadhramôt) under Count Landberg, was due there, and having touched at Muscat November 21st, arrived at Basrah end of the same month. After a quarantine of ten days they proceeded on the Tigris to Bagdad, where the last preparations for a long campaign were completed till end of December. The latest news received is a cable dated end of January.

Accompanied by a Turkish commissioner and a number of soldiers, the well-equipped caravan has moved to Nippur, by way of the ruins of Babylon, where active work may be expected to have been resumed about the first of February at all such points as have been previously determined. The excavation of the lowest strata of the temple of Bel or Enlil, "the father of the gods," the exploration of certain quarters of the

ancient city proper, and the determination of the precise site of the chief gates of Nippur have been set as the expedition's chief task for the next months. Accordingly, three large gangs of Affej Arabs and other native men, amounting to more than two hundred active persons, with the military escort and our Turkish servants, will be employed for regular methodical work at the mound, as soon as the trenches, partly filled with sand from the desert, have been cleaned, and the old camp has been thoroughly repaired and strengthened. Doubtless the final results will again amply repay all our combined efforts in Philadelphia, Constantinople, and at Nippur.

January 31st, 1899.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

Mr. Cornelius Stevenson has deposited an Indian shield (21,389) and dance bonnet (21,390), said to have belonged to the Chief Sitting Bull, and purchased in Philadelphia at the sale of the Melvain collection.

The shield of tanned buffalo hide has a cover of buckskin, ornamented with pendant eagle feathers and deer tails and painted half yellow and half white. A red disk, surrounded by fourteen sets of parallel red lines, is painted on the yellow half of the cover, a red star in the centre, and a yellow star outlined in red, with a red centre on the white half of the field.

Attached to the shield by a thong is a bone whistle, eight and one-half inches in length, which produces two notes by blowing in the ends. One note is much shriller than the other and is said to be the signal for battle, and the other for retreat.

Mr. James Mooney, of the United States Bureau of American Ethnology, to whom a sketch of the shield painting was submitted, says that it is the shield of some Plain's tribe other than the Kiowa. "The two crosses or four-pointed stars are symbolic representations of the morning star. It is common to paint opposite sides of shields with colors symbolic of day and night, usually, respectively, yellow and black, or red and dark blue."

The head dress or war bonnet is made of a strip of hide about nine inches in length, to the front of which is sewed a strip of buckskin, covered with blue and white beads in alternating triangles. Attached to the hide are two horns, each made of part of the horn of a buffalo bull, the horn having been split from end to end, and one-third of it shaved thin and light and then highly polished. The ends are tipped with colored horse hair and strips of ermine fur, and wound with strings of small white beads. These horns are affixed to the top of the head-dress on each side in the same manner

that they stood on the head of the buffalo, rising out of a mat of clipped feathers. At the back of the head-dress is a strip of red flannel to which is sewed seven small brass bells. A string of feathers is fastened along the flannel and a number of long war-eagle feathers, tipped with red, depend from it.

Along the front of the head-dress, above the beaded buckskin, is a string of tubular shell beads, similar to, but longer than the shell wampum of the East, and attached to the flannel at the back is a small bag made by tying up a strip of colored calico, containing a small quantity of yellow-colored vegetable powder.

Dr. William Pepper presented a pair of beaded moccasins (21,077).

THE FAR EAST.

CHINA.

A friend of the Museum has presented a Chinese official costume, consisting of hat, robe, shoes, and beads (21,104). Certain details of the dress are interesting, from a comparative point of view. The official hat, *kúm mǎ*, which is surmounted with a button of red glass, to represent the actual button of precious coral, has a peacock feather, *ling*, attached below the button. The mechanism by which it is held in place, a tube of glass representing jade attached to a metal plate, *t'o ling*, is practically identical with that employed by the Indians of certain American tribes in connection with their dance crests.¹ In a typical example in the museum (8,139) from one of the Plains' tribes, the eagle feather passes through a bone tube, corresponding to the jade tube, which in turn is fastened to a bone tablet, in the same manner as the jade to the metal plate. The string of beads, *ch'iu chü*, copies in glass of the actual precious materials, consist of 108 yellow (amber) beads divided into four divisions of 27 each by three larger green (jade) beads and a fourth green (jade) bead having a pendant bead with three divisions, resembling the large pendant on the Mohammedan rosary. Near this, attached to the main string, are three strings each of ten

¹ See article on "Ponka Feather Symbolism," by W J McGee (*The American Anthropologist*, XI, p. 156) in which the bone tube, etc., are illustrated.

small beads of a pink color (Rhodonite) similar in form to the string of ten small beads fastened to the Mohammedan rosary for keeping count of the circuits.

The *p'd* or escutcheon, a square of embroidered silk, which is worn at the back of the robe, is $10\frac{1}{2}$ inches square, with an outer silk border, increasing the whole to $17\frac{1}{2}$ inches. The design represents a bird standing upon a rock amid waves surmounted with clouds through which the sun is shining. Among the clouds bats are represented and at the side are plants with flowers.

Dr. William Pepper presented an ear-pick (20,079) from Canton, purchased in San Francisco.

Dr. Max Buchner, Conservator of the Royal Ethnological Museum, Munich, has presented two casts of Chinese bronze mirrors (21,287) in that Museum, the designs on the backs of which, like those of such mirrors generally, have been shown by Prof. Dr. Frederich Hirth to be of non-Chinese origin.

JAPAN.

A friend of the Museum has presented the following objects, purchased in Kyoto, Japan :

21,102. Tea jar, *cha-ire*, Satsuma (?).

21,103. White Satsuma incense burner, $3\frac{1}{2}$ inches in height, with silver cover. Made at the pottery of Prince Shimadzu, of Satsuma, about 280 years ago. The prince had a collection of beautiful jade objects, from one of which, it is said, the design of the censer was taken, whence it is known as the jade-shaped incense-burner.

21,105. Embroidered silk wall hanging, $44\frac{1}{2}$ x 72 inches, with design of a dragon, after a sketch by Shōsen, said to be from the Shōfukuji temple, in Kyoto, and 120 years old.

21,107. *Fukusa*, silk napkin (used for spreading over offerings to the gods, or to place a flower-vase on), embroidered with a writing-table or desk, and a stationery-box, alongside of which is a noble's fan with peony blossoms upon it, a sprig of plum blossoms, and a bunch of bells, *sudzu*.

Also, sixteen lacquered *inrō*, or "medicine-boxes," with decorations referring to the twelve months, and the four festivals. Purchased in Yokohama.

21,099. Gold-lacquered *inrō*, decorated with pine, bamboo, and turtle. Maker, Eisai Saisho Kuntatsu. *Netsuke*, ivory carving, New Year dancer, by Giokkosai. *Ojime*,¹ ivory, vine and bird with lacquer.

21,093. Gold-lacquered *inrō*, decorated with plum blossoms. Maker, Kajikawa. *Netsuke*, gold lacquer, representing "Nō" dance hat. *Ojime*, mixed metal work.

21,094. Black and gold lacquered *inrō*. Decoration: "Cherry blossoms at Yoshino" (near Nara, celebrated for a whole hill covered with cherry blossoms). *Netsuke*, black and gold lacquer, cherry and other flowers in medallions. *Ojime*, mixed metal work.

21,095. Black lacquered *inrō* representing a cake of Japanese ink decorated with an Indian elephant. Maker, Hankō. *Netsuke*, wood carving in the form of three seals. *Ojime*, cut stone, amethyst. A small silk bag to hold flint, etc., is also attached.

21,006. Black lacquered *inrō* decorated with Shōgun's sword ornament in silver. Maker, Koma Yasuomi. *Netsuke*, wood carving, Shoki, the demon queller, emerging from a picture and endeavoring to stab an imp. Maker, Tsugiyoku. *Ojime*, amber, chrysanthemum design.

21,097. Gold dust lacquered *inrō* inlaid with gold, coral and stones representing balloon vines.² Maker, Shōritsusai. *Netsuke*, wood carving, an infant with balloon fruit (coral). *Ojime*, crackle crystal. With printed cotton bag for flint, etc.

21,098. Black and gold lacquered *inrō* with oak leaves in gold with Japanese poem referring to Tanabata, the festival of the "Weaver," the 7th day of 7th month (old style). The "Weaver" is the star Vega, near the milky way. Maker, Jōkasai. *Netsuke*, wistaria seed representing a bottle, with silver mounting. *Ojime*, metal and porcelain glaze representing a snail.

21,000. Black lacquered *inrō* decorated with relief design of sleeping boar and autumn flowers in gold and colors. *Netsuke*, wood carving, crouching boar. *Ojime*, agate.

¹ The slide on the strings of a bag or pouch, to fasten it.—*Hepburn*.

² *Cardiospermum Halicacabum*'.

21,101. Gold lacquered *inrô*. Decoration, chrysanthemums at court. *Netsuke*, gold lacquer representing empress's fan. *Ojime*, blue glaze.

21,099. Black and gold lacquered *inrô*. Decoration, cedar and deer. *Maker*, Kôgiyoku. *Netsuke*, ivory, miniature box inlaid with shell and coral. *Ojime*, amber.

21,088. Gold-lacquered *inrô*. Decoration, Takasago pine and Yôrô cascade (near Gifu, Province of Mino). *Maker*, Koma Hisashige. *Netsuke*, wood carving, representing a toy dog. *Ojime*, agate.

21,089. Black and gold-lacquered *inrô*. Decoration, *Kiri* (Paulownia) and *hō-ō* (Phoenix), the *kiri* leaves inlaid with shell. *Netsuke*, wood carving; cold turtle closed in his shell. *Maker*, Miwa. *Ojime*, cinnabar lacquer, inlaid with pearls, etc.

21,087. Gold-lacquered *inrô*. Decoration, tiger and dragon fighting. *Maker*, Hasegawa Kôrinsai. *Netsuke*, wood carving, winged demon, hatching from shell. *Maker*, Masayuki. *Ojime*, engraved fruit stone, dragon. *Maker*, Kôzan (at age of 61 years).

21,090. Black-lacquered *inrô*, with group of turtles in gold lacquer. *Maker*, Yukasai. *Netsuke*, wood carving, mother turtle and baby turtles. *Ojime*, agate, with silk bag for flint, etc.

21,106. Cinnabar lacquer, *inrô*, with Chinese landscape and figures. *Netsuke* and *Ojime*, cinnabar lacquer.

21,091. Black lacquered *inrô*. Decoration, eagle and orange-tree in gold. *Netsuke*, wood carving, monkey with chestnut. *Ojime*, coral.

KOREA.

A Korean *hpyen-tjyen* (Chinese, *p'ên tsin*), or "part arrow" (21,067) has been received as an exchange from the United States National Museum.

These arrows, eighteen inches in length, much shorter than ordinary arrows, are shot from the same bow with the aid of a guide or rest. The latter falls to the ground when the arrow is discharged, and is recovered by means of a string, which is tied to the archer's finger. They have a conical iron head. The shaftment, which has three feathers, is painted black.

These arrows bear no marks, and were kept tied in large bundles, ready for use when required.¹

LUCHU ISLANDS.

The following objects, collected by Dr. W. H. Furness, 3d, and Dr. H. M. Hiller, in 1896, have been presented by the collectors :

- 21,408. Striped cloth of banana-leaf fibre.
- 21,409. Kimono of dark blue figured cloth of banana fibre and cotton.
- 21,410. Hank of banana-leaf fibre.
- 21,411. Hat made of the leaves of *Cycas revoluta*.
- 21,413. Hair-pins (6), metal, with flower at top. Men's (Fig. 36).
- 21,414. Hair-pins (8), metal. Spoon-shaped, small, narrow bowl. Men's (Fig. 36).
- 21,415. Hair-pins (6), metal. Spoon-shaped, with large bowl (Fig. 37).
- 21,416. Hair-pins (2), metal. Spoon-shaped, with small bowl (Fig. 37).
- 21,417. Hair-pins (3), wood, spoon-shaped. Women's, peasant class.
- 21,418. Hair-pin. Horn, spoon-shaped. Women's, rich farmer class (Fig. 37).
- 21,419. Toy drum, painted red ; decorated with picture of Chinese lion with ball.
- 21,420. Game of Tip-cat, known as *Gicho* ;² from the island of Okinawa. "Cat" and bat (Fig. 38) of wood ; length respectively seven inches and nine and one-quarter inches.
- 21,421. Game of Tip-cat, known as *Teng* ;³ from the island

¹ *Korean Games*, p. xxi.

² *Gicho*=*gitcho*, Japanese, a toy shaped like a wooden mallet ; a game of ball. Syn. *dakyū* (a game of ball played on horseback).—*Hepburn*.

³ According to Mr. Motochica Tsuda the game of tip-cat is played in Japan in the district near Kumamoto under the name of *in ten*, the small stick being called *ko*, "son," and the longer *oya*, "parent." The latter is usually a foot to a foot and a half long. Mr. Seizaburo Yasukawa (Wharton School, 1900) describes the game as played by him at Asiya, in the province of Chikujen, with a small stick which is first placed in an inclined position in a hole dug in the earth, the projecting end being struck. Afterwards the cat is laid across

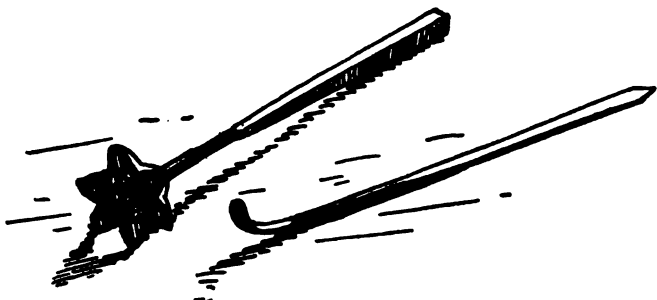


Fig. 36.—Pair of Man's Hair-pins. Luchu Islands. Museum Science and Art. 21,413-14.

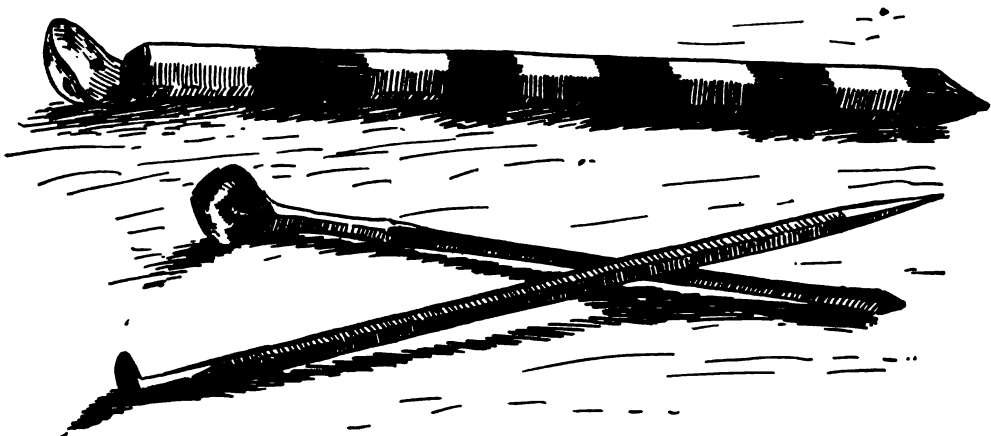


Fig. 37.—Pair of Woman's Hair-pins. Horn Hair-pin. Luchu Islands. Museum Science and Art. 21,415-16 and 21,418.

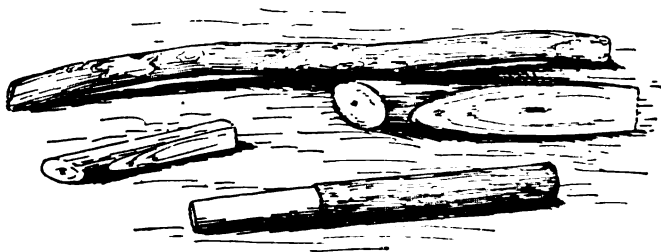


Fig. 38.—Games of Tip-cat, *Gicho*, Okinawa, and *Teng*, Oōshima. Luchu Islands. Museum Science and Art. 21,420-21.

of Oōshima. "Cat" and bat of wood (Fig. 38). Length respectively four and three-quarters inches and fourteen and three-quarters inches.

21,422. Whip-top, coarse white coral (Fig. 39).

21,423. Whip-top, wood (Fig. 39).

21,424. Whip for tops; bamboo handle with lashes of cotton cloth (Fig. 39).

21,425. Game of *Hama nage*,¹ played similarly to our game of hockey; bat of wood, thirty-three inches in length, and disc of wood (section of a small tree) three inches in diameter and three quarters of an inch thick (Fig. 40).

21,426. Game of *Hajiki*.² Clay discs (thirteen) half an inch in diameter, flat on one side and rounded on the other (Fig. 41). Played by girls; one disc or checker is snapped at another along the ground, and by hitting wins that checker.

21,427. Game of *Chang koro*, played with shells (Fig. 42); in this instance *Lucina interrupta*, Lam. The object of the game is to turn the shells over on their concave side by throwing another shell down upon them. The shell which is thrown must, after accomplishing its object, also land with its concave side down.

the hole and tossed in the air by means of the bat placed beneath it, and then struck. The object of the game is to knock the cat as far as possible, the distance back to the hole being measured with the long stick, the lengths counting. The players sometimes catch the cat in aprons when it is knocked in the air, and then throw it back to the batsman, who endeavors to strike it again.

¹ In Kagoshima, Japan, a game is played with a wooden ball about three inches in diameter called *hama*, the game being called *Hama nage*, or "*Hama* throwing." It is usually played in the first month. Four persons usually play on a side, each having a club about three feet long. The ball is placed in the middle, between two base lines, and the object is to drive it across the opponent's line. The players stand in a row, and if the first one fails to stop the ball, and the second or third stops it, he takes the place of the first player. When the ball is driven across a boundary the sides change places. *Korean Games*, p. 57, which see for an explanation of the name.

² *Hajiki*, Japanese, "A spring; a jerk, snap; a kind of game played with the fingers."—*Hepburn*.

Mr. Seizaburo Yasukawa describes a similar game played by girls on the seashore at Asiya under the name of *kaeshi*. A number of small shells, *masago* (literally "sand"), are put down on the sand and the players in turn drop a large bivalve upon them, taking those that turn over. If none turn over the next plays.

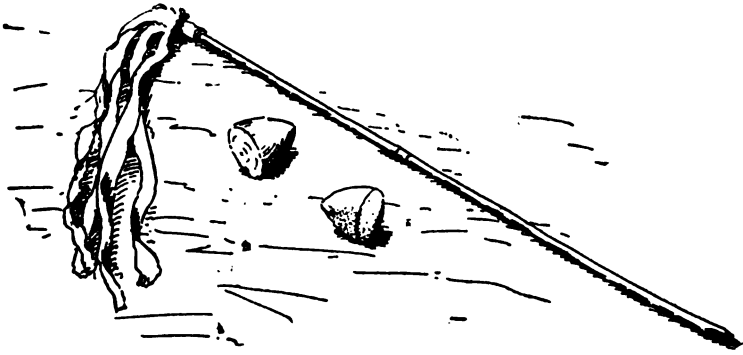


Fig. 39.—Whip Tops of white coral and of wood, and whip. Luchu Islands. Museum Science and Art. 21,422-24.

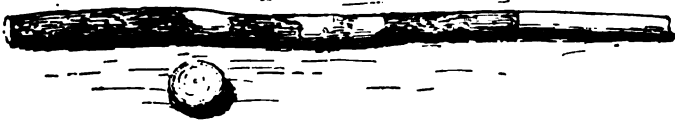


Fig. 40.—Game of *Hama nage*. Length of bat, 33 inches. Luchu Islands. Museum Science and Art. 21,425.

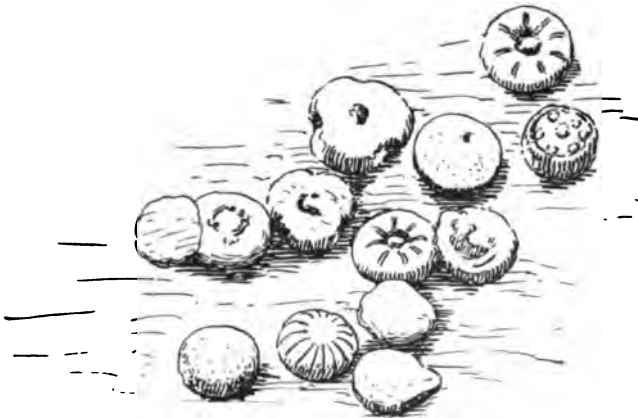


Fig. 41.—Game of *Hayiki*. Diameter, $\frac{1}{4}$ inch. Luchu Islands. Museum of Science and Art. 21,426.

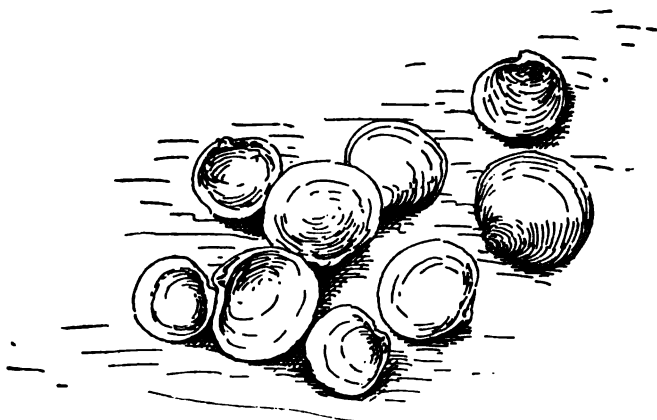


Fig. 42.—Shells used in game of *Chang koro*. Luchu Islands. Museum Science and Art. 21,427.

21,428. Model of racing boat.

21,429. Pewter can and cup in which *Shoju* (a strong alcoholic drink made from millet) is served hot, like tea.

21,430. Seed pod of the "sea bean" (*Entada scandens*?) containing several beans.



Fig. 43.—Tattooing Implements. Oōshima and Okinawa, Luchu Islands. Museum Science and Art. 21,434-37.

21,431. A smoked watersnake, a favorite article of food among the poorer classes of Okinawa.

21,432. *Kakemono*; view of the cities of Naha and Shuri.

21,433. *Kakemono*; costumes of Okinawa.

21,434-37. Tattooing implements of Oöshima and Okinawa, comprising needles, stick for tracing patterns, ink slab and ink (Fig. 43). The needle used in Oöshima consists of three needles stuck together with wax or a gum and set in a handle of paper bound over and over with thread until it is pear-shaped and easy to hold. The needle used in Okinawa is made up of twelve needles stuck together in a row between two slips of bamboo which are set in a handle of paper similar to that of Oöshima. The ink is ordinary Japanese (India) ink and the slab is an inverted top of a glazed pottery jar. It is provided with a wooden cover. The needles are jabbed into the skin straight up and down, after the pattern has been painted on with a thick solution of the ink.

INDIA.

Dr. Thomas Biddle has presented the following objects: Two clay statuettes (21,174-75) eight and a half inches in height, representing a man with breech cloth, modelled of similar figures in miniature, represented in relief; a similar figure of a woman (21,176) composed of the skins of animals and birds in relief, painted in their natural colors, and the figure of an ape (21,177) seven inches in height, entirely covered with figures of apes, birds, and other animals, colored and in relief. These objects, obtained by Dr. Biddle for the Museum from W. Jamrach, of London, were manufactured by a native artist from Lucknow, in Calcutta.

BURMA.

A bronze image of a seated Buddha (21,086) 19½ inches in height, obtained from the Royal Palace at Mandalay at the time of the dethronement of King Thebaw, has been purchased from the collector, Mr. J. L. Denchfield.

AFRICA.

BENIN.

H. Ling Roth, Esq., of Halifax, England, has presented the following objects: Eight bronze bracelets (21,151-58), one buckle (21,159), three pins (21,160-62), two ornaments (21,163-64), iron bracelet (21,165), bronze plates (21,166-67), bronze mask (21,167½), and ivory armlet (21,168). (See p. 28.)

Mr. Charles Este, Jr., has given a Zulu tobacco-pipe (21,075).

SPECIAL COLLECTIONS.

American History.—Mrs. William Frishmuth has presented the following objects, illustrative of manners and customs of the Colonial and Revolutionary period, purchased from Mr. W. A. Hatch, Columbia, New York.

21,195. Tin bread-tray, over 100 years old. From Ayers estate.

21,196. Decorated tin bread-tray, over 100 years old. From Griswold's estate, Connecticut.

21,201. Neck-yoke, used for carrying water, and in maple sugar-time, the sap pails in the woods. From Hatch estate, Columbia, New York.

21,198. Quill wheel shuttle, 10 inches in length. Formerly used in making linen and woolen fabrics.

21,197. Bear-trap of wrought iron, used by the early settlers for large game, on the shores and mountains of Canda-rago Lake, New York. From the Bates estate, Candarago Lake, New York.

21,400. Cow's horn, used by mowers for carrying whetstone. Engraved, "S x R 1831." Columbia, Penna.

21,401. Sad-iron. Lancaster County, Penna.

21,402. Tin sand-box. Columbia, Penna.

Fans.—Mrs. Lucy Wharton Drexel has made the following additions to her collection :

21,126. Persian, 16th century. Round fan of parchment, painted with bunches of flowers. Ivory handle, with inlaid designs.

21,113. Chinese, 18th century. Folding bone fan, with incised designs and painted flowers.

21,111. Dutch, 18th century. Folding fan. Water-color

painting, on swan-skin; family scene, "The Nursery." Sticks of silver, and guards of silver filigree.

21,112. Flemish, 18th century. Folding fan. Figure painting in Chinese style, on swan-skin. Ivory sticks and guards, decorated in miniature style. Vernis Martin. Purchased in Antwerp

21,109. Flemish, 18th century. Folding ivory fan, with Flemish paintings; fanciful landscapes. Vernis Martin. Purchased in Bruges.

21,109. Flemish, 18th century. Folding ivory fan, similar to preceding, but with guards decorated in miniature style. Purchased in Bruges.

21,124. French, Louis XIV. Fan leaf, silk, with *gouache* painting, "The Landing of Venus."

21,120. French, Louis XVI. Folding fan. Net with chenille applique in conventional floral designs. Carved and painted ivory sticks.

21,116. French, ca. 1795. Folding fan, copper-plate engraving, assignats of the French Revolution.

21,117. French ca. 1795. Folding fan, copper-plate engraving, assignats of the French Revolution; another design.

21,122. French, end 18th century. Screen fan, *écran*, of cardboard, with wooden handle. Painted in water color, with figures in Chinese style.

21,123. French, end 18th century. Screen fan, *écran*, of cardboard, with wooden handle. Face, with applied colored engraving, *Le Feu de la St. Jean*. There is a tradition that the French *émigrés* supported themselves by painting miniatures, and, in the same style, on fans. Many of them lived in Nürnberg, where this and the preceding fan was purchased.

21,115. French, end of 18th century. Folding pear and cedar-wood fan, with applied engraved medallions and colored engraved portrait of Catherine of Russia in the school of Bartolozzi.

21,114. French, end of 18th century. Folding cedar-wood fan, with applied engraved portraits of Louis XVI and Lafayette, after miniatures by Isabey, and an engraving by Bartolozzi after Angelica Kauffman, "Charlotte at the Tomb of Werther."

21,228. French, (?) 18th century. *Ecran*, folding form, covered with printed cotton, millefleur pattern, and lacquered wood sticks with gilt designs.

21,118. French, Empire. Folding fan, colored print, Pierrot, Colombine and Punchinello.

21,121. French, Empire. Folding horn fan, with painted floral decorations.

21,123. French, Empire. Fan leaf, paper, with *gouache* painting, "Orpheus and Eurydice. Orpheus attracts the animals by the sound of his lyre."

21,119. French, Restoration. Folding fan of paper, with colored prints, illustrating anagrams.

21,184. French, 19th century. Screen fan, *écran*. Folding form, with wooden handle with ivory mount.

21,131. French, Paris. Folding fan. *Cirque Molière*, June, 1894.

21,132. French, Paris. Folding fan. "Souvenir de la Bastille, 1789." (1879?)

21,133. French, Paris. Folding fan. The Visit of the Czar and Czarina of Russia. October, 1896.

21,185. French. Folding fan, with painting, by J. G. Vibert, entitled, "The Departure." Gold-encrusted tortoise-shell sticks and guards.

21,129. Austrian. About 1795. Folding fan, copper-plate engraving, "Diana's Sacrifice."

21,127. Austrian, end 18th century. Folding fan, colored copper-plate engraving, "Procession of Bacchus."

21,130. Austrian, end 18th century. Folding fan, with colored engraving of dancing flower girls. Cedar-wood sticks.

21,141. Austrian, Vienna. Folding fan, souvenir of the Imperial Jubilee, 1848-1898.

21,142. Austrian, Vienna. Folding fan, souvenir of the fifty-year Jubilee of H. M. the Emperor Francis Joseph I, 1848-1898.

21,143. Austrian, Vienna. Folding fan, *Kaiser-Jubilaums-Fächer*. (Portraits of the Royal Family.)

21,144. Austrian, Vienna. Folding fan, Imperial Jubilee, 1848-1898. Architectural views of Vienna.

21,145. Austrian, Vienna. Round paper fan, in the form of a butterfly, with gilded sticks.

21,146. Austrian, Vienna. Folding fan, printed muslin, with Kate Greenaway designs of children playing games.

21,137. Austria, Vienna. Folding fan, colored lithograph, street types, signed, "Wertheimer."

21,138. Bohemian, Prague. Folding fan, views of the City of Prague.

21,139. Bohemian, Prague. Folding fan, International Architectural Exposition, Prague, 1898.

21,140. Bohemian, Prague. Wooden folding fan, painted with figures in national costume, and painted and burned floral designs.

21,134. German, Berlin. Folding fan, souvenir of Berlin (architectural views).

21,135. German, Berlin. Folding fan, *Berliner Gewerbe-Ausstellung*, 1896.

21,136. German, Berlin. Folding fan. Printed muslin, with figures, in Spanish style.

21,147. German. Folding fan. Stamped colored cardboard figures, roccoco ladies and gentlemen.

21,148. German. Folding fan. Stamped colored cardboard figures, German naval officers.

21,149. German. Folding fan. Stamped, colored cardboard figures, Prussian lieutenants.

The above were collected during the past summer by Mr. Stewart Culin. In addition, Mrs. Drexel has added the following fans:

21,392. African. Gola tribe. Rectangular fan of split reed, with split wood handle.

21,180. Hawaiian. Leaf-shaped fan, *pe-a-hi*, with margin of woven bleached straw, centre of section of trunk of palm, and handle of woven split bamboo. Inscribed "Aloha. Liliuokalani of Hawaii," the autograph of Queen Liliuokalani, by whom the fan was presented to Mrs. Drexel.

21,381. Hawaiian. Leaf-shaped fan, *pe-a-hi*, with woven legend, "Aloha." Stem made of petiole of a palm and blade of same material, split and woven together.

21,179. Japanese. Folding fan, *ogi*, with picture of Main Building, Centennial Exposition, Philadelphia, 1876.

21,379. Mexican. Fire fan, *soplador*. Round form, made of woven leaves of palm while still young and in the unfolded condition. This is the form of fan represented in the Mexican codices.

21,380. Mexican. Fire fan, *soplador*, rectangular, made of split palm-leaf.

21,183. Mexican. Zacetacas. Fire fan, *soplador*. Rectangular form, made of woven pinnules of a palm, with slightly toothed or serrated margins.

Fire-Making and Lighting.—Mrs. Lucy Wharton Drexel has presented two glass fluid lamps (21,169–70), a brass oil

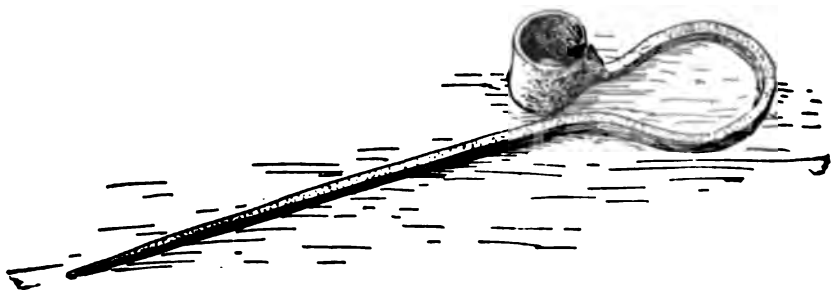


Fig. 44.—Candle-Holder. Durham iron-ore quarry, Riegelsville, Penna. Museum Science and Art. 21,063.

lamp, Empire style (21,171), and two horn lanterns (21,172–73). The latter, purchased in Antwerp by Mr. Culin, appear to date from the early part of the century and may have been used by the city watch.

Mr. Charles Laubach has presented fat lamp (21,062), an oil lamp (21,061), and a candle-holder (21,063, Fig. 44) used in the Durham iron-ore quarry, Riegelsville, Pa. Mr. Laubach writes: "The candle-holder was used during the mining period from 1727 to 1793, and to some extent from 1826 to 1893. A tallow dip was inserted in the orifice, and then the upper part of the dip, for a distance of two or more inches, was protected by wrapping it with a thin sheet of prepared potter's clay to prevent its too rapid combustion. Such holders were used by the

early settlers to light their dwellings, being stuck into the unprotected portions of the log cabin or the beams of the house. The fat lamp was used as a hanging light about the furnace of 1727 from 1770 to 1793, and, at intervals later, 1836 to 1858, in the mines. About 1860 the oil lamp which was secured to the miner's hat came in use and is still used in the iron-ore mining regions.

Mrs. William Frishmuth has given the following objects :

21,188. Small pair of fireplace tongs, used for picking up coals for lighting candles and pipes. From Bates estate on Candarago Lake, New York.

21,189. Sheet-iron firepan, with wooden handle, 150 years old, used in the country for borrowing fire from neighbors before the use of matches. From Bates estate.

21,190. Bellows. Brought from England over 100 years ago. From Griswold estate, Connecticut.

21,191. Bake oven rest of wrought iron. Used in early times to put bake oven on in fireplace on baking days. From Hatch estate, Columbia, New York.

21,192. Charcoal furnace, bucket-shaped, lined with fire clay. Formerly used by tinsmiths and makers of nails, rivets, etc. From Griswold estate, Connecticut.

21,193. Bread toaster, of wrought iron, formerly used in fireplace. Brought from South Windham, Connecticut. From Hatch estate, Columbia, New York.

21,194. Waffle irons, 150 years old. Once the property of Paul Green, a Revolutionary hero, one of the first settlers of German Flats and Andrustown, New York.

Games.—Mrs. Lucy Wharton Drexel has presented the following objects collected by Mr. Stewart Culin :

Board Games.—Merrells and Fox and Geese types.

21,205. *Jeu de l'assault.* Printed sheet, Delhalt, Metz.

21,211. *Mühlesiehen.* Printed sheet, J. F. Schrieber, Stuttgart.

21,223. *Landstreicher und Gensdarm.* Printed sheet, J. F. Schreiber, Stuttgart.

21,216. *Der Fuchsfang.* Printed sheet, J. F. Schreiber, Stuttgart.

21,208. *Das Jäger-Spiel*. Printed sheet. Ochmigke & Riemschneider, Neu-Ruppin.

21,226. *De Schapendief*. Printed sheet. B. Jacobs, Groningen.

21,224. *Toekoe Oemar Spel*. Printed sheet. Amsterdam.

21,225. *Atchin*. Printed sheet. A game played with pieces or men somewhat like draughts. Holland.

Dice:

21,277. Pair modern stone dice, serpentine. Purchased in Cottbus.

21,278. Pair modern stone dice, serpentine. Purchased in Vienna.

21,279. Pair modern china dice. Purchased in Leiden.

11,280. Modern china die. Leiden.

21,296. Modern ivory die. Vienna.

21,281. Bone top-die, *Mariandl*.¹ Purchased in Prague.

A ten-sided prismatic top-die with longitudinal pin, having nine sides marked with black spots from 1 to 9, arranged so that the sum of the opposite faces from 1 to 8 equals nine. Opposite the 9, on the tenth side, is the figure of a peasant girl, Marianne, which counts double.

21,371. Serpentine die, with 18 sides, the six principal faces marked with Roman letters TA, NH, SZ, ND, LS, NG, and the twelve facets with spots from 1 to 12. Probably 18th century, or earlier. Purchased in Dresden.

The letters stand for *t—a*, *nim halb*, "take half;" *setze zu*, "put more;" *nim deins*, "take thine;" *lass sein*, "let alone;" *nim ganz*, "take all."

21,282. Bone top-die, *Mariandl* (Fig. 45). Purchased in Vienna. Made in Vienna, and largely sold for export.

21,283. Bone top-die, with six sides marked with the Roman letters T, NH, SZ, ND, LS,



Fig. 45. — Top-die, *Mariandl*. Vienna. Height, $2\frac{3}{4}$ inches. Museum Science and Art. 21,282.

¹ A popular Viennese diminutive for Marianne.



Fig. 46. — Top-die.
Vienna. Height,
3 inches. Museum
Science and
Art. 21,283.

NA, alternately black and red (Fig. 46). Vienna.

21,284. Silver filigree top die with six sides, marked with the letters *T, N, D, A, B, S* (Fig. 47). Purchased in Zaandam.

21,376. Wheel of fortune. Whirling top with black and red numbers, 00–12, with fixed arrow. Purchased in Prague.

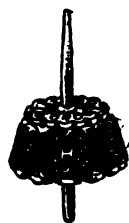


Fig. 47. — Top-die,
Zaandam. 1½ inches
high. Museum
Science and
Art. 21,284.

Dice Games :

21,209. *Das Todtenkopf und Kannon-Spiel*. Printed sheet. Ochmigke & Riemschneider, Neu-Ruppin.

21,213. *Der Vogelhändler*. Printed sheet. A dice game with card counters. J. F. Schreiber, Stuttgart.

21,222. *Das Standesspiel*. Printed sheet. J. F. Schreiber, Stuttgart.

Dominoes :

21,212. Domino-spiel. Printed sheet to be cut apart. J. F. Schreiber, Stuttgart.

21,256. Bone dominoes. Set of 28 in wooden box. Eighteenth century. Purchased in Zaandam.

21,210. *Domino-Spiel. Dambrett Spiel*. Printed sheet. Robrahn & Co., Madgeburg.

21,217. *Bilder domino* (card-mating game). Printed sheet. J. F. Schrieber, Stuttgart.

21,221. *Der Mann im Mond*. Printed sheet. A kind of picture-domino game. J. F. Schreiber, Stuttgart.

"Goose" games :

21,202. *Jeu de l'oie*. France. Eighteenth century.

21,202. *Mappe Monde*. France. Eighteenth century.

21,206. *Das Pferderennen*. Madgeburg.

21,214. *Der Glücksvogel*. Stuttgart.

21,215. *Das Gigerlspiel*. Stuttgart.

21,220. *Das Ganselspiel*. Stuttgart.

21,227. *Nieuw Vermakelijk Gansenspel*. Amsterdam.

- 21,228. The same. Madgeburg.
- 21,229. The same. Amsterdam.
- 21,238. The same. Amsterdam.
- 21,230. *Brandweerspel*. Amsterdam.
- 21,231. *Tramwayspel*. Amsterdam.
- 21,232. *Wieler Sport-spel*. Amsterdam.
- 21,233. *Reis door Europa*. Amsterdam.
- 21,234. *Nieuw Circus Spel*. Amsterdam.
- 21,235. *Groot Eiffel Toren Spel*. Amsterdam.
- 21,236. *Het Dwergen-Spel*. Amsterdam.
- 21,237. *Mallemolenspel*. Amsterdam.
- 21,239. *Sint Nicolaasspel*. Holland.
- 21,240. *Ganzenspel*. Groningen.
- 21,241. *Kroningspel*, 1898. Amsterdam.
- 21,242. *Ganzenspel*. "Venlo, by de Weduw H. Bontamps. Gelder, by F. en C. Bontamps." Rude woodcut, 22 by 17½ inches. Eighteenth century. Purchased in Paris.

- 21,243. *Ganzenbord*. Holland.
- 21,244. *Clingendaalisch Wedrenspel*. Holland.
- 21,245. *Nieuw Vermakelijk Ganzenspel*. Holland.
- 21,246. *Het Vermakelijkharlekeinspel*. Haag.
- 21,247. *Het nieuwe Amerikaansche Louispel*. Amsterdam.

With a few exceptions the Dutch goose games have 63 "houses" or stations.

- 21,391. Wood block for printing *Jeu de l'oie*. French. Seventeenth century. Purchased in Paris.

Knuukle-bones:

- 21,293. Set of five, bleached for use in game. Purchased in Antwerp.

- 21,294. Set of five, collected on quay in Paris, from young girl who was using them in game (*osslets*).

- 21,295. Set of four, made of pewter. Purchased in Antwerp.

Playing cards:

- 21,340. Pack Italian cards (40) Bologna.
- 21,341. *Cartes Flamandes* (36) Daveluy, Bruges.
- 21,342. *Cartes Liégeoises* (36) Daveluy, Bruges.
- 21,343. *Cartes têtes anciennes avec vues d'Ostende* (36) Daveluy, Bruges.

- 21,344. *Fijne Speelkarten* (36) Daveluy, Bruges.
- 21,345. *Fijne Nederlandsche Speelkarten* (52). National costumes and views of Dutch cities. Daveluy, Bruges.
- 21,346. *Fijne Indiaansche Speelkarten*. Batavia (52). Views of Dutch Indies. Daveluy, Bruges.
- 21,370. Pack of 76 cards, $3\frac{1}{4} \times 2\frac{1}{2}$ inches, ruled in eight vertical columns, imprinted at the top alternately with the letters N and R in black and red, and perforated with four double columns of pin pricks, each line of which corresponds with one of the two letters. Purchased in Bruges, and said to be used as playing-cards by the blind.
- 21,354. *Jeu de Coucou* (28). Watilliaux, éditeur, Paris. Analogous to the Swedish *Killekort*, the German *Hexen*, and the Danish *Knavspil*, and like them probably derived from the Italian game of *Cuccu*.¹
- 21,347. *Nain Jaune* (53). Daveluy, Bruges.
- 21,348. Hollandish fortune-telling cards "Jw Lenormand" (36). Daveluy, Bruges.
- 21,349. *Comiques* (32) Daveluy, Bruges.
- 21,350. *Cartes marbrées* N. 2. Meur. Gourmont, Bruxelles.
- 21,351. *Nieuw allemandes* (32). Aces with views of Lisbon. Made for Portuguese Indies. B. D. Z. Peacock trade-mark.
- 21,352. *Cartes superfines* (32). Aces with views of Belgian cities. B. D. Z. Peacock trade mark.
- 21,353. *Cartes superfines* (32). Aces with views of Belgian cities.
- 21,355. *Konigin Wihelmina Kaart* (52). C. L. Wüst, Frankfurt, a. M.
- 21,356. *Astronomisches Kartenspiel* (52). With copper-plate engravings of the constellations and descriptive German text. Early 18th century, Nürnberg.
- 21,368. Old German cards, $3\frac{1}{4} \times 4\frac{3}{8}$ inches, with round corners, printed in colors, orange, green and red, from wood blocks. Much worm-eaten. Purchased in Nürnberg.

¹ See *Die Sammlung der Spielkarten des bairischen Nationalmuseums*. Munich, 1884, and *Report U. S. National Museum for 1896*, p. 940.

Six cards and two fragments with backs printed alike with star patterns, comprising :

Etchel, 8.

Herzen, *Daus.*, 8.

Laub, *Ober*.

Schellen, 7. *Unter*.

And two from another pack with plain backs, but similar faces, both *Schellen*, *Unter*.

These cards, identical with a fragmentary pack exhibited in the Bavarian National Museum at Munich (Cat. No. 14) made by Bernhart Muckle of Nürnberg, were attributed by Bierdimfl¹ to the year 1583. Essenwein² regards them as antedating 1518, and v. Eye attributes the origin of the type to the first half of the 15th century.

21,367. Pack of 32 circular cards, $2\frac{5}{16}$ inches in diameter, with hand-painted paper faces covered with horn and brass backs, in brass box. Purchased in Nürnberg. Said to have been used formerly in taverns.

The suits are distinguished by colors: red, green, white, yellow. Each has four numerals 7-10, indicated by Roman numerals in a wreath of green leaves; an eight-pointed star (ace?) and three court cards: grotesque man, flower (sunflower, tulip, rose and pink?) and crown (king).

21,369. German playing cards (35 from pack of 36) with sentimental and humorous copper-plate engravings and verses. Nürnberg, early 18th century.

21,357. German playing cards (34 from pack of 36). Nürnberg, nineteenth century.

21,358. German playing cards (34 from pack of 36). Nürnberg (?) nineteenth century.

21,359. German playing cards (23 from pack of 36). Conrad Jegel. Nürnberg, nineteenth century.

21,360. German playing cards. Twenty-four odd cards similar to preceding.

21,361. German playing cards (24). *Der 18 Oct., 1813*. J. G. Backofen, Nürnberg.

¹ *Die Sammlung der Spielkarten des bayerischen Nationalmuseums*, p. 71.

² *Katalog der Kartenspiele und Spielkarten*, Nürnberg, 1886, p. 6.

21,386. German alphabet cards, copper engravings. End of eighteenth century. Purchased in Nürnberg.

21,365. Piquet pack (32). Aces with German views. Stralsund.

21,362. *Struwel Peter*.

21,363. *Fragen und Antworten*.

21,364. *Wer hat Gans gestolen?*

The above, from 21,362, are children's games, purchased in Strasburg.

21,219. *Katze und Maus*. Card game. Printed sheet. J. F. Schrieber, Stuttgart.

21,337. Rubbings from wood block for printing cards in the Archæological Museum, Ghent :

Fifteen court cards for Tarot pack. *J. de Porre. Fab't de Cartes a Gand*.

21,338. Do., twelve court cards, English type.

21,339. Do., sixteen court cards.

All of the above are without suit marks, which were evidently inserted with another block.

Puzzles :

21,255. *Geduld - Würfel*. Die puzzle. Purchased in Nürnberg.

21,258. *Nansen's Nordpolfahrt*. Analagous to "Pigs in Clover" puzzle, the object being to get a shot into a central hole from among triangular pieces of glass. Purchased in Nürnberg.

21,257. *Gemla. Schwedisches Geduldspiel*. Thirty-two balls of colored wood, strung on wires, the object being to get balls of the same color in rows.

21,260. Double cross puzzle, wood. Purchased in Nürnberg.

Tip-Cat :

21,261. Cat and bat for game of *spacek*, "cat." Prague.

21,262. Cat and bat. Antwerp.

21,263. Cat and bat, *pinkel* and *pinkelplank*. Leiden.

Tops :

21,377. Hand top. Globular, tin. Prague.

21,313. Humming top, *brom tol*. Leiden.

- 21,314-5. Humming tops, *ulk* (wolf). Prague.
 21,316. Humming top, *Brumm Kreisel*. Cottbus.
 21,330. Peg tops (2). Zaandam.
 21,331. Peg top. Broek.
 21,320. Peg top. Prague.
 21,317-19. Peg tops (3). Ghent.
 21,332. Peg top. With cord attached at top. Ghent.
 21,321. Whip top. Munich.
 21,322-29. Whip tops (4). Cottbus.
 21,323-24. Whip tops (2). Zaandam.
 21,325. Whip top. Markem.
 21,326-7. Whip tops (2). Antwerp.
 21,328. Whip top. Prague.
 21,378. Whip for top. Munich.
 21,398. Whip for top. Nürnberg.
 21,335. Whips (2) for whip-top (*sabot*). Paris.
- Miscellaneous:*
- 21,292. Baton of heavy folded paper in shape of closed fan. Sold and used at the fair called the *Vogelweise* held at midsummer. Dresden.
 21,259. *Billiard Kegel*. Five pins used in billiards. Berlin.
 21,252. Bird dart, *vogel pik* (2), with paper target having 24 numbered squares. Antwerp.
 21,218. Chessmen, *Schachfiguren*. Printed sheet. J. F. Schreiber, Stuttgart.
 21,254. Clapper. Antwerp.
 21,274. Card counter, in form of die, wood. Vienna.
 21,275. Card suit marker. Ivory die, with suit marks. Vienna.
 21,264. Cup and ball. Leiden.
 21,207. Draft board and men, *Jeu de dames*. Printed sheet. Delhalt, Metz.
 21,298. *Die geheimnisvollen Metallplättchen*. Nürnberg.
 21,270. Flying toy, *moucha*, "fly." Prague.
 21,300. Fortune-telling toy. Circular box, with picture of flower (daisy) on bottom, and shot, upon the principle of roulette. Amsterdam.

21,266. Key pistol. Made of an old key in which a paper fulminating cap is exploded with an inserted nail by swinging the key against a wall. A boy's toy. Collected in Leiden.

21,291. Kite, *Drak*. Folding sticks, covered with yellow muslin. Prague.

21,204. *Das Poch-Spiel*. Printed sheet. Robrahn & Co., Magdeburg. Intended for a card game in which the stakes are laid on this board.

21,248-49. Battledore and shuttlecock. *Raquette* and *volant*. Paris.

21,310. Rattle, *ori cri*. Paris.

21,311. Rattle, *kechtaoka*. Prague.

21,312. Rattle. Munich.

The above are of the form commonly known in the United States as watchman's rattles.

21,253. Rattle doll. Antwerp.

21,268. Sling shot, *katapul*. Leiden.

21,265. Sucker. A disk of leather with a cord attached, used to pull brick from pavement, or lift stones. Leiden.

21,250-51. Tambourine, *tambourin*, for *jeu de tambourin*, and two rubber balls used in the game. Paris.

21,270-73. Trick match-boxes. Nürnberg.

21,297. Whirligig. Prague.

21,333. Child's whistle, Antwerp.

Dr. J. D. E. Schmeltz, Director of the National Museum of Ethnography, Leiden, has presented a replica of a rolling die from Japan in that Museum, employed in a game designated on the printed sheet accompanying it as *Kuwan-siyoku seu ein sugoroku*, a Japanese form of the well-known Chinese game of the "Promotion of Mandarins." This die (21,307), Catalogue number 1.2639, Leiden Museum, is $2\frac{1}{4}$ inches in length, with six sides, inscribed with Chinese characters. Two such dice are employed in the game.¹

Dr. Schmeltz has also presented a copy of a small block, *sangi*, one of six used in a Buddhistic game, similar to the above, also in the Leiden Museum. This die (21,308) is $1\frac{1}{8}$ inches in

¹See *Bibliothèque Japonaise*, par Dr. L. Serrurier, Leiden, 1896. No. 824.

length, painted black upon two adjacent sides, the others being left uncolored. The title of the game, as designated on the printed sheet, is *Bup-pau sau-bun*.¹ It is of Chinese origin.

The K. K. Naturhistorische Hofmuseum, Vienna, has presented casts of 31 long dice (21,290) referred to *La Tène* period, from Hradischt, near Stradonitz, Bohemia.²

The Museum Wallraf-Richartz, Cologne, Germany, has presented, through the Curator, Dr. A. Kisa, a photograph (21,305) of a set of gaming implements, found in April, 1895, in a grave in Johannes street, Cologne. They consist of 24 rounded ivory oones, half of which show traces of red paint, four small cubical ivory dice, regularly marked, and two tubes of bone, open at both ends, in which the dice were sticking. They were in a small, wooden box, which had entirely decayed. The bronze handle and key of the box is shown in the picture. Dr. Kisa also presented a cast (21,306) of one of the above ivory game pieces.

Dr. A. B. Meyer, Director of the Royal Zoölogical and Anthropological Museum in Dresden has presented replicas of three long wooden dice (21,285) from the Batak of Sumatra, copies of the original in the Dresden Museum, collected by G. Meissner.

M. Joseph Destrée, Conservator of the Musées Royaux des Arts Decoratifs et Industriels, Brussels, has presented a set of 12 engravings (21,388) of face cards, from a pack of engraved silver cards in that Museum, No. 2,875, bearing the monogram of Alexander Mair, or Mayer, a German artist of the last half of the 16th century.

Mrs. Laura B. Starr has presented a pack of Spanish cards (21,382), Ma. Fulladosa y Ca, Barcelona, purchased in Mexico.

Mr. F. J. Ziegler, of Philadelphia, has presented a pack of old German tarok cards (21,076).

Dr. Max Uhle has presented the "Betsey Ross flag puzzle" (21,081).

¹ See *Bibliothèque Japonaise*, par Dr. L. Serrurier, Leiden, 1896. Nos. 597, 598.

² See *Mitteil des anthropol. Ges. Wien*, X. 255 and *Report U. S. National Museum* for 1896, p. 825.

Replicas of a set of chessmen (21,286) from the Batak of Sumatra (collected by Meissner), and of three carved game markers (21,288) of the Mondji, Africa, in the Royal Ethnological Museum, Munich, have been made for the Museum through the courtesy of Dr. Max Buchner, the conservator. A replica of a stone die (?) of the *La Tène* (?) period, in the Bavarian National Museum, Munich, has also been obtained through Dr. Buchner.

A wooden bowl and six worked fruit stones (21,072) for the bowl game from the Seneca Indians, Cattaraugus Reservation, Cattaraugus County, New York, have been obtained by purchase. (Fig. 50. *Report U. S. National Museum for 1896*.) Also a set of bone gaming disks (21,073) from the same tribe and place. (Plate 6, *Report U. S. National Museum for 1896*.)

Numismatics.—Robert C. H. Brock, Esq., has deposited a 40-franc gold piece of Napoleon I as King of Italy, 1812.

Mrs. Lucy Wharton Drexel has presented a bronze coronation medal (21,309) struck to commemorate the coronation of Queen Wilhelmina of Holland, September 6, 1894.

Weights and Measures.—Mrs. Lucy Wharton Drexel has presented a carved carpenter's foot-measure (21,269), inscribed "Johannes Kriel, 1750," purchased in Nürnberg. Also, a collection of 22 reproductions of tally sticks (21,371-75) of the 17th century in the Germanic National Museum, Nürnberg, kindly made through the courtesy of that museum.

Mrs. William Frishmuth has presented the following objects :

21,199. Birch bark grain measure. Contents roughly 1.03 United States bushels. Made and used by early settlers, and about 150 years old. From Bates' estate, Candarago Lake, New York.

21,200. Steelyards, old pattern. From Hatch estate, New York.

Sadajiro Sugiura has presented a Japanese *soroban* or abacus (21,085).

LIBRARY.

The following are among the most important acquisitions since the last issue of the BULLETIN :

Fac simile reproduction of the Borgiano Codex. Gift of *M. le Duc de Loubat*.

Códice Fernández Leal. Publicado por el Dr. Antonio Penafiel. Mexico, 1895. Gift of *Dr. William Pepper*.

Plates illustrating the Hindu Pantheon, reprinted from the work of Major Edward Moor, F. R. S., London, 1861.

Certain Aboriginal Mounds of the coast of South Carolina. Certain Aboriginal Mounds of the Savannah River. Certain Aboriginal Mounds of the Altamaha River. By Clarence B. Moore, Philadelphia, 1898. Gift of the *Author*.

The Ceramic Art. By Jennie J. Young, New York, 1876.

The Art of the old English Potter. By L. M. Solon, New York, 1879.

Hand-book of Pottery and Porcelain. By Hodder D. Westropp, New York.

A Guide to the Knowledge of Pottery and Porcelain. By Henry G. Bohn, London, 1876.

Embroidery and Lace. By Ernest Lefébure, London, 1889.

South Kensington handbooks:

The Industrial Arts.

The Jones Collection.

The Dyce and Forster Collection.

Spanish Arts.

Textile Fabrics.

Glass.

Danish Arts.

Skandinavian Arts.

Pottery and Porcelain.

Gift of *Mrs. William Fishmuth*.

EXCHANGES.

An exchange of publications has been made with the following societies and institutions since the last issue :

American Museum of Natural History, New York City.

Canadian Institute, Toronto, Canada.

State Historical and Natural History Society, Denver, Colorado.

Ohio Archæological and Historical Society, Columbus.

Museo de la Plata, La Plata, Argentine.

Museo Nacional de Montevideo.

Bernice Pauahi Museum of Polynesian Ethnology and Natural History, Honolulu.

Royal Geographical Society of Australia, Sidney.

Straits Branch of the Royal Asiatic Society, Singapore.

Germanisches Naturalmuseums, Nürnberg, Germany.

Cechoslavisches Museum, Prague, Austro-Hungary.

WILLIAM PEPPER, M. D., LL. D.

WILLIAM PEPPER, lately Provost of the University, and at the time of his death President of the Department of Archæology and Palæontology of the University of Pennsylvania, and of the University Archæological Association, born, Philadelphia, August 21, 1843, died on July 29, 1898, at Pleasanton, Alameda County, California.

Case

Shelf

HARVARD UNIVERSITY.



LIBRARY

OF THE

PEABODY MUSEUM OF AMERICAN
ARCHÆOLOGY AND ETHNOLOGY.

GIFT OF

the Museum

Received

July 31. 1879



PLATE 2. New Museum Building.

Am

BULLETIN
OF THE
Free Museum of Science ^{AND} Art
OF THE
UNIVERSITY OF PENNSYLVANIA.

VOL. II.

PHILADELPHIA, JUNE, 1899.

No. 2.

THE NEW MUSEUM BUILDINGS.

Some three years ago when the collections of the Department of Archæology of the University of Pennsylvania had grown to such dimensions as to make it evident that they could no longer be accommodated in the rooms which they then occupied in the University Library, a movement was set on foot by the late William Pepper, M. D., then president of the department, which resulted in obtaining from the State of Pennsylvania, and other subscribers, a sum of money sufficient to justify the preparation of plans for a suitable museum building. Ground to the extent of some nine acres had previously been given by the city of Philadelphia for museum purposes.

The committee charged with carrying the matter forward retained Messrs. Wilson Eyre, Jr., Cope & Stewardson and Frank Miles Day & Brother, as joint architects for the proposed museum.

The problem with which the architects were confronted, was the designing of a building which should afford a large exhibition area, accompanied by all necessary workrooms and administration rooms, in an entirely fireproof and

permanent structure, at as small a cost as might be consistent with dignified results. It was necessary to plan the building in such a way that portions might be erected from time to time, each portion being complete in itself, and of such a nature as to present a satisfactory appearance at any stage of the progress of the work. Such conditions made necessary, long study of the preliminary plan of the entire group of buildings. These studies, during the course of which many different general arrangements of the plan were developed, and many treatments of the exterior suggested, lasted for nearly a year. At last a definite plan was adopted, and working drawings and specifications were prepared for the first wing of the museum, a considerable portion of which has now been erected.

The general plan as indicated by plate 3, was decided upon.

It will be seen that in the centre of the group, it is the intention to erect a dome which will dominate the entire composition. From this dome broad galleries extend, eastward and westward to two secondary domes, with each of which are connected two groups of buildings, one facing the north and the other facing the south. The portion at present erected, is the western group of buildings facing South street. The foundations of the western secondary dome have been put in place, and it is hoped that the dome itself may shortly be erected.

The portion at present complete, consists of buildings facing three sides of a quadrangle, in which are located a formal garden, with brick paths, trim hedges, stone benches, grass plots, etc., and a large pool for aquatic plants. The entrance to this garden is beneath a broad hooded gateway, which stands at the top of the steps leading from the street to the higher level. To the westward of the museum, and extending to Thirty-fourth street, are terraced grounds, also formally treated, in the centre of which will be placed the bronze statue of Dr. Pepper,

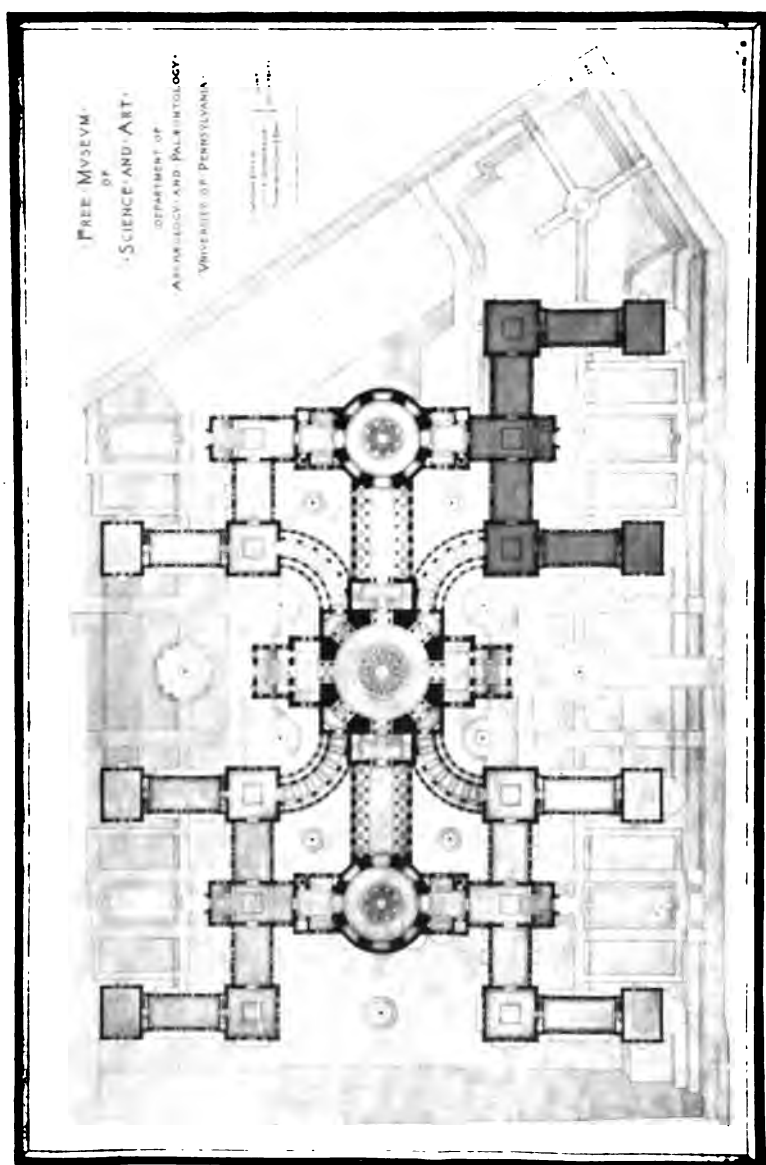


PLATE 3. Free Museum of Science and Art. Ground Plan. (Shaded portion indicates part constructed.)

recently completed by Mr. Carl Bitter, and presented to the University of Pennsylvania by friends of Dr. Pepper at the time of his resignation as Provost.

Entering the building through the quadrangle, one finds himself upon a spacious stairway landing, whence he may ascend to the second or principal exhibition floor, or descend to the first floor of the building.

Upon the second floor he finds himself in the great central hall, in which will be displayed, objects illustrative of the countries bordering the Mediterranean. To the westward are two large rooms, devoted to the display of objects secured by the various University expeditions to Babylonia; while to the eastward are similar rooms, in which the Etruscan and Egyptian collections will be displayed. Upon the level of this floor are also rooms for administration, for curators, and for instruction. The first floor is almost entirely devoted to exhibition rooms. In the western wing, Professor Maxwell Sommerville's collection of objects connected with Buddhist worship, has been installed in the form of a temple, while in the next room, in the southwestern corner, will be displayed his valuable collections of engraved gems.

The large room adjoining will be devoted to the exhibition of Ethnological objects of Asiatic origin, while the central gallery of the first floor will contain objects from Central and South America.

To the eastward are rooms in which will be lodged collections illustrative of the life of the Colorado Cliff Dwellers, and other American aborigines. The extreme eastward corner room will be devoted to the collections which Dr. W. H. Furness, Dr. H. M. Hiller and Mr. Alfred C. Harrison, Jr., have recently brought from Borneo and adjacent islands. The room immediately to the north of this will be occupied by a splendid collection of musical instruments (presented to the University by Mrs. Frishmuth) and by Mrs. Drexel's collection of fans.

On the first floor there remain to be mentioned only the Library, a room 34 x 46 feet, extending through two stories in height and having a shelf capacity of 15,000 volumes; and the Lecture Room, occupying a corresponding position in the western wing, and having a seating capacity of about three hundred persons.

The entire ground floor is devoted to space for unpacking, repairing, arranging and storing specimens. Here, are also the lavatories, shops, work rooms, janitor's quarters, restaurant for employes, etc., etc.

Examining again the exterior of the building, it is seen to be in that form of brick architecture which prevailed in the North of Italy from the twelfth to the fourteenth century. The building is of rough brick of somewhat unusual color, laid with extremely wide mortar joints, which give a vigorous, hardy character to the work. The external ornamentation consists chiefly of roughly executed mosaics, of fragments of brick and marble, somewhat similar to those in the walls of the old church of San Stefano in Bologna. The cove of the main cornice at the back of the courtyard is enriched with glass mosaics in conventional forms, and enlivened with figures of birds and animals. Comparatively little carved ornament has been used on the exterior of the buildings; and this is confined to some conventional animals forming the terminals of gables, to shields over the windows which are representative of the collections within, and to a panel over the main door executed by Mr. Calder, in which two youths are supporting a shield bearing as its inscription the name of the Museum. One of the features which contributes most to the external effect of the building is its simple roof of large heavy tiles of the so-called Spanish form.

The building is entirely fireproof in its construction. It is heated by steam, in some parts by direct and in others by indirect radiation. Its electrical equipment is complete, and includes lighting, telephones, burglar alarms, etc. The formal opening will take place early in the autumn of 1899.



PLATE 4. Main Entrance.



Fig. 48.—The "Orrery" Seal.

THE RITTENHOUSE "ORRERY."

BY ABRAHAM S. WOLF ROSENBACH.

The University of Pennsylvania has had in its possession for over one hundred and twenty years an object which was considered in revolutionary days to have been the greatest mechanical device in His Majesty's Colonies. Visitors came from abroad to see it, and scientists noted in their treatises the wonderful proficiency of its American inventor. The College of Philadelphia (now the University of Pennsylvania) received as much celebrity from the orrery constructed by David Rittenhouse, as it did from the exertions of that ingenious gentleman, Benjamin Franklin, and the brilliant scholarship of Dr. Smith. The "planetarium," or "orrery," played an active part in the life of the time—if such may be said of an inanimate object. It entered into the broad fields of science and the liberal arts, of politics, and of diplomacy. To-day the orrery receives but a passing glance from visitors, and its unique history is unknown even to some of our more prominent local antiquarians.

The first conception of a machine that would exhibit the orbits of the stellar bodies did not originate with David Rittenhouse. Planetariums were known in the time of the

Greeks. Boethius is said to have constructed one. Richard Boyle, Earl of Orrery, from whom the orrery derives its name, patronized one that was made by Rowley for George I. The price paid for it was a thousand guineas. The orreries that had been constructed up to the time of Rittenhouse were not of scientific significance, but mere playthings, the baubles of kings and princes.

The project of a planetarium had long been nurtured in the mind of Rittenhouse: the clocks and timepieces he had made were famous throughout the colonies. Many of them are to be seen to-day in the houses of the descendants of provincial families, and in the cabinets of our older public institutions. The University of Pennsylvania owns one of these venerable hall clocks, and its rich walnut case and illuminated dial recall the days when it perhaps gave the hour for the opening session of the College and Academy of Philadelphia. In the earlier part of 1767, the idea of a planetarium having become fixed in his thoughts, Rittenhouse determined to construct one, and drew up his designs. On January 28, 1767, he wrote to his brother-in-law, Thomas Barton: "I did not design a machine which should give the ignorant in astronomy a just view of the solar system, but would rather astonish the skillful and curious examiner by a most accurate correspondence between the situations and motions of our little representatives of the heavenly bodies, and the situations and motions of those bodies themselves. I would rather have my orrery really useful by making it capable of informing us truly of the astronomical phenomena for any particular point of time; which I do not find that any orrery yet made can do."*

On March 27, 1767, Rittenhouse communicated to Barton the first description of his orrery: "I send you a description of *my* imaginary machine; the foundation of it is now laid, and I hope that part of it containing the

* *Memoirs of the Life of David Rittenhouse*, by William Barton. Philadelphia: Parker, 1813; p. 194.



PLATE 5. Side view of Main Entrance.

mechanical astronomy of the moon will be finished some time this spring: *then* we shall be able to judge whether my abilities are equal to the undertaking."* Rittenhouse worked diligently upon it, and in the course of a year it looked as if his long cherished hopes would be realized. To the American Philosophical Society, the first and most renowned of the learned societies in America, he determined to impart his plan. In the first volume of the transactions of this organization will be found, "A Description of a new orrery planned, and now nearly finished, by David Rittenhouse, A. M., of Norriton, in the county of Philadelphia; Communicated† by Dr. Smith." In it is described, with great exactness and nicety, the plan of the planetarium. The machine was to have three faces,— "that in front," in the quaint language of its maker, "to be four feet square, made of sheet brass, curiously polished, silvered and painted in the proper places and otherwise ornamented. From the centre arises an axis to support a gilded brass ball intended to represent the *sun*. Round this ball move others, made of brass or ivory, to represent the *Planets*: they are to move in elliptical orbits, having the central ball in one focus, and their motions to be sometimes swifter, and sometimes slower, as nearly according to the true law of equable description of areas as is possible, without too great a complication of wheelwork. The orbit of each planet is likewise to be properly inclined to those of the others; and their *Aphelia* and *Nodes* justly placed; and their velocities so accurately adjusted as not to differ sensibly from the tables of astronomy in some thousand years." From this we may get some idea of the scope of the work and the difficulties Rittenhouse had to overcome before his planetarium would be completed. The machine was to be put in motion by simply moving

* *Ibid*, p. 198.

† Transactions of the American Philosophical Society, held at Philadelphia for promoting useful knowledge. Philadelphia: Bradford, 1771. Vol. i, pp. 1-3. The paper was read March 21, 1768.

a crank. There were to be three indices to it, which would point out the hour of the day, the day of the month and the year; and it would be in perfect accord with the situation of the heavenly bodies. The position of the planets would be determined in the same manner as though the observer was examining the sky itself. There was to be a minute telescope, and it could be so applied that the longitude and latitude could be calculated. "The part containing the astronomy of the *Moon* has been some time finished, and is found perfectly to answer, by many trials already made of it. The remainder of the work is now almost completed." Not trusting to the calculations of others, he constructed his own astronomical tables in order to insure perfect accuracy.

The orrery was finished by Rittenhouse in the early part of 1770. A description of it had been sent to Thomas Penn, of the Proprietary family, in London. He wondered at the cleverness of its constructor, and he could not imagine that such a thing could be "executed in Pennsylvania." The orrery, in its completed state, was perhaps as handsome an astronomical machine as was ever devised. It was enclosed in a mahogany case, most curiously carved, and the blendings of the metals—gold, silver and brass—were most harmonious, and the multitude of wheels, revolving balls and shining indices bewildered those who came to look upon it. The public, as well as the scientific world appreciated the merits of what was to be henceforth called the "Rittenhouse orrery."*

Who was to become the possessor of this most astounding machine? There were two competitors in the field, Princeton College, and the College and Academy of Philadelphia. Dr. Witherspoon, on the one hand, and Dr. Smith on the other, strove hard to procure the orrery for his own institu-

* Rittenhouse was probably assisted in the construction of his orreries by his brother Benjamin, who was also an instrument maker. Henry Voigt, later coiner of the United States Mint, also helped.

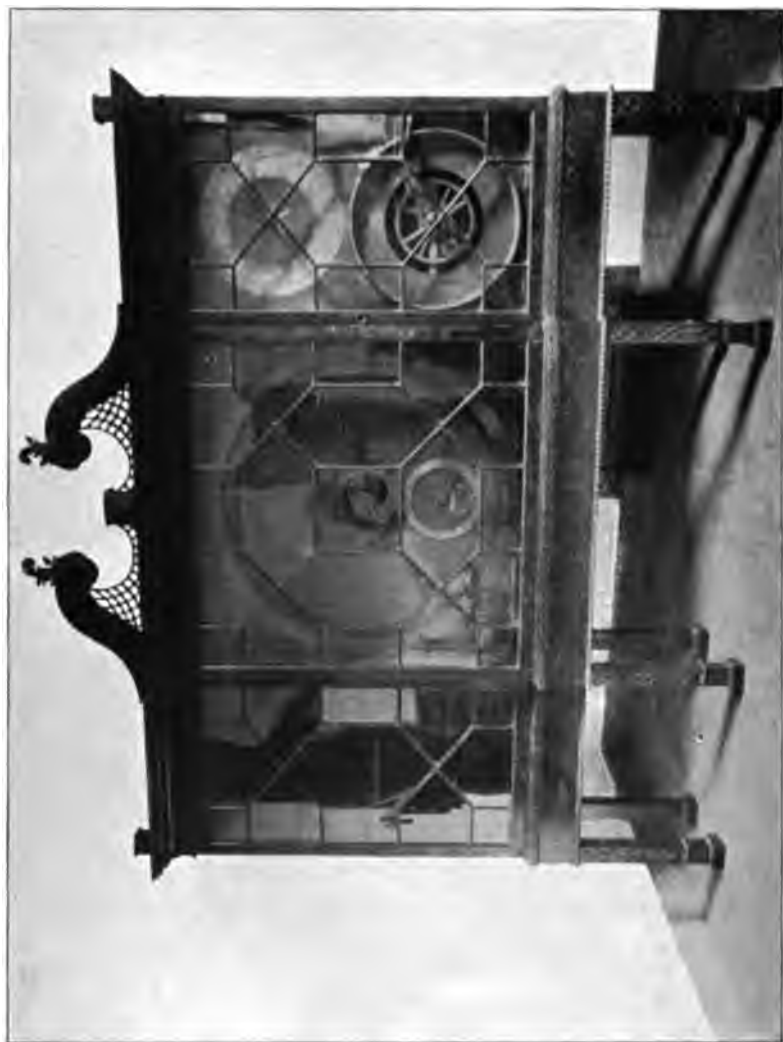


PLATE 6. The Rittenhouse "Orrery." Catalogue No. 21,592, Free Museum of Science and Art.

tion. They contended for it with as much energy and vim as the two universities some years ago fought for the football supremacy. Dr. Witherspoon, then president of the College of New Jersey at Princeton, accompanied by some of the gentlemen of the faculty, had viewed the planetarium at the home of Rittenhouse at Norriton. Having once gazed upon its fair proportions they determined to possess it, and used the weight of their persuasive powers to influence its inventor to cede it to them. Dr. Smith thought that the most fitting place for it was within the walls of the College of Philadelphia, for Rittenhouse had been well patronized by the citizens of Philadelphia, and the college had in 1767 bestowed upon him the honorary degree of Master of Arts. Sometime in May, 1770, the College of New Jersey became the possessor of the orrery, and it was transferred from Norriton to Nassau Hall. In the history of Princeton University, issued upon the occasion of the sesqui-centennial (New York, 1898) no mention is made of the acquisition of this famous piece of mechanism.* Perhaps if Dr. Benjamin Franklin had been at that time in Philadelphia, instead of enjoying himself with the nobilities abroad, the first orrery constructed by Rittenhouse would have remained within the state that saw its birth. The ransom paid for it by the trustees of the College of New Jersey was but three hundred pounds in the currency of the Province of Pennsylvania—a most modest sum.

The College of Philadelphia felt the loss of the orrery keenly. Some of its faculty, and many closely allied with the institution, thought the matter had not received fair treatment at the hands of Rittenhouse. "I never met with greater mortification," wrote Dr. Smith, "than to find Mr. Rittenhouse had, in my absence, made a sort of agreement to let his orrery go to the Jersey College. I had constantly

*This rather startling omission may also be noticed in the *Early History of the University of Pennsylvania, from its Origin to the Year 1827*, by George B. Wood, M. D., with Supplementary Chapters by Frederick D. Stone, Litt. D., Philadelphia, 1896.

told him that if the Assembly did not take it, I would take it for our college, and would have paid the full sum, should I have begged the money. I thought I could depend, as much as on any thing under the sun, that after Mr. Rittenhouse knew my intentions about it, he would not have listened to any proposal for disposing of it without advising me, and giving our College the first opportunity to purchase. I think Mr. Rittenhouse was never so little *himself* as to suffer himself to be taken off his guard on this occasion. This province is willing to honor him as her *own*; and believe me, many of his friends wondered at the newspaper article;* and regretted that he should think so little of his *noble* invention as to consent to let it go to a village; unless he had first found on trial that his friends in this city had not spirit to take it. For if he would wish to be known by *this work*, and introduced to the best business and commissions for instruments, from all parts of the continent—his *orrery* being placed in our college, where so many strangers would have an opportunity of seeing it, was the sure way to be serviceable to himself."

This letter of the provost's reflects in some degree the feelings experienced by the good citizens of Philadelphia at the loss of the orrery. It probably did not occur to them that another could be constructed, equal if not superior, to the one which reposed serene in its polished casing at the College of New Jersey. Rittenhouse, the historians tell us, was a philosopher. He recognized this point, and

*"It is with Pleasure that we inform the Public, that the *Orrery*, of which the *American Philosophical Society* formerly published an account, projected and executed by Mr. David Rittenhouse, in this Province is now almost finished. As this is an American Production, and much more complete than anything of the kind ever made in *Europe*, it must give great Pleasure to every Lover of his Country, to see her rising to Fame in the sublimest Sciences, as well as every Improvement in the Arts. Dr. Witherspoon, accompanied by some Gentlemen, went Saturday last, to see and converse with the ingenious Artist, and being convinced of the superior Advantages that must arise from this new invented *Orrery* in the Study of Natural Philosophy, and desirous to encourage so truly great a Genius purchased it for the Use of the *College of New Jersey*."—*The Pennsylvania Gazette*, Thursday, April 26, 1770. An identical notice may be found in *Bradford's Pennsylvania Journal and Weekly Advertiser* of the same date.

shrewdly suggested the possibility of constructing another orrery, more ingenious and more wonderful than the first. Rittenhouse, in a letter to Barton, thus expressed himself: "I would not, on any account, incur the imputation of cunning; nor are there probably many persons living who deserve it less; yet I am greatly mistaken if this matter does not turn out to my advantage and consequently, to your satisfaction. At present, the point is settled as follows: I am to begin another (orrery) immediately and finish it expeditiously, for, since the making of a second will be but an amusement, compared with the first." "And who knows," Rittenhouse facetiously observes, "but the rest of the colonies may catch the contagion."

The indignation at the removal of the orrery to Nassau Hall was not confined to those interested in the College of Philadelphia alone. It was far more widespread. The Governor of Pennsylvania, when he heard of the decision of Rittenhouse, declared that the orrery should not go—he would rather pay for it himself. He declared that in his opinion the College and Academy of Philadelphia ought to have the first orrery, and not the second, even if the second should be the best.

The crowning achievement of David Rittenhouse as a mechanical genius was the second orrery—the one that now reposes in the University of Pennsylvania. It was not a mere replica of the orrery at Princeton, although like it in the general principles of construction. Its price was fixed at £300, not a large sum, but one that the College of Philadelphia found difficult to collect. A course of lectures was given by Dr. Smith, to help defray the cost. The public crowded to hear them, and great interest in the planetarium was evinced by everyone. The provost, who was known as a mathematician and astronomer of some note, and who had assisted in observing the transit of Venus in 1769, described the mechanism of the orrery, and the great good that would result to the

College of Philadelphia on becoming its owner. As a result of these lectures, two hundred pounds were collected. The new orrery was finished about a year after the completion of the first, and proved to be the last constructed by Rittenhouse. It has been in continuous possession of the College of Philadelphia from the day it was delivered in 1771. The College, desiring to secure the services of Rittenhouse, asked him to take charge of the scientific laboratory. The following is a minute of the action taken by the Board of Trustees upon it:

"Nov. 19, 1771.

"Dr. Peters, in Behalf of the Trustees, sent for Mr. Rittenhouse and desired he would be so kind as to take Charge of the Philosophical Apparatus, and occasionally assist Mr. McDowel in lecturing upon the Experimental Parts of Natural Philosophy; to which Mr. Rittenhouse very obligingly consented."*

This seems to have been Rittenhouse's first official connection with the University of Pennsylvania. On December 16, 1779, he was appointed professor of astronomy, and on February 8, 1780, he was elected vice-provost of the University.

The history of the two famous machines does not end here. They were destined to play their part in the struggle that was soon to be fought out. Their history, like that of their constructor, must be included in the chronicles of the American Revolution.

State legislatures in the colonial period of Pennsylvania were constituted differently from those of our own day. They sometimes would give a bounty to those of their citizens who had done something to advance the honor of the State, although not in the diplomatic corps or upon the field of battle. Rittenhouse was one of those whom

* Minutes of the Trustees of the College, Academy and Charitable Schools. Vol. II, p. 34. MS. In custody of the Assistant Secretary, University of Pennsylvania.

the governing body chose to reward for distinguished service in the cause of science. When the money was being collected to pay for the orrery for the College of Philadelphia, the Assembly realized the importance of it, and the fact that the price to be paid was but a pittance for such an undertaking. They therefore drew up a suitable preamble and resolution, wherein they recompensed Rittenhouse by giving him from the common treasury £300; and as a further recognition of his sterling worth requested that he construct another orrery for the "use of the public."

The order taken by the Assembly is here given *in extenso*:

"March 8, 1771.

"The Members of the Assembly having viewed the Orrery constructed by Mr. *David Rittenhouse*, a Native of this Province, and being of Opinion that it greatly exceeds all others hitherto invented in demonstrating the true Situations of the celestial Bodies, their Magnitudes, Motions, Distances, Periods, Eclipses and Order upon the Principles of the *Newtonian* System,

"*Resolved*, That the Sum of *Three Hundred Pounds* be given to Mr. *David Rittenhouse*, as a Testimony of the high Sense which this House entertains of his Mathematical Genius and Mechanical Abilities in constructing the said Orrery.

"And a Certificate of the said Sum being drawn at the Table, was signed by the Speaker, and delivered to Mr. *Evans*.

"*Ordered*, That Mr. *Evans*, Mr. *Rhoads*, Mr. *James*, Mr. *Rodman*, Mr. *Morton*, Mr. *Carpenter*, Mr. *Montgomery* and Mr. *Edmonds*, with the Speaker, be a Committee to agree with and purchase from Mr. *Rittenhouse* a new Orrery for the Use of the Public, at any Sum not exceeding *Four Hundred Pounds* lawful money of this Province." *

* Notes and Proceedings of the House of Representatives of the Province of Pennsylvania. Beginning the Fourteenth Day of October, 1767. Philadelphia: Henry Miller, 1776. Vol. vi, p. 301.

Later, in September 24, 1771: *

"The Committee appointed to treat and agree with Mr *David Rittenhouse* for one of his newly invented Orreries for the Use of the Public, presented to the Chair a Report thereon in Writing, which was read by Order, and follows in these Words, *viz.*:

"The Committee appointed to agree with and purchase from Mr. Rittenhouse a new Orrery for the Use of the Public, beg Leave to report, that they have, in Pursuance of the Order of Assembly, agreed with Mr. *Rittenhouse* for a new Orrery at the Price of *Four Hundred Pounds*, the Sum limited by the House, to consist of one principal Square of eight Feet or more each Way, with two Wings, making in the Whole one large Front, as nearly resembling the Form of the Orrery now standing in the College of the City of *Philadelphia*, as its superior size will admit."

The orrery that the Assembly ordered of Rittenhouse was never finished. Perhaps it was never started. The transition period—the decade before the signing of the Declaration of Independence—were times of much disturbance and ill-feeling in the province of Pennsylvania. There were continual ruptures between the supporters of the "proprietarys" and the opposition, or what may be called the "popular" party. The Assembly was divided into cliques made up of the two parties. The outbreak of the revolution in Pennsylvania, as in the other States, was but the culmination of conflicting opinions that had disturbed the peace of the province for many years. Rittenhouse entered with vigor into the struggle. He laid aside his gentle craft and astronomical researches in order that he might devote all his energies to the cause of the colonies.

The fame of the orreries spread. Visitors from the other colonies, and finally from other countries, viewed them with admiration. Thomas Jefferson, a man steeped in the

* Ibid, Vol. vi, pp. 330-1; also partially reprinted in Barton, p. 223.

science of his day, said : " We have supposed Mr. Rittenhouse second to no astronomer living, that in genius he must be the first, because he is self-taught. As an artist he has exhibited as great a proof of mechanical genius as the world has ever produced. He has not indeed made a world, but he has by imitation approached nearer its Maker than any man who has lived from the creation to this day."*

In 1774 the first Continental Congress met at Philadelphia. The orrery at the college on Fourth street was one of the " sights " of the city, and the delegates looked with astonishment upon the invaluable invention. Its constructor was beginning to take an active interest in the politics of the day, and his name was known throughout the provinces. John Adams, when on a visit to Princeton, wrote under date of August 27, 1774, " Here we saw a most beautiful machine—an orrery or planetarium, constructed by Mr. Rittenhouse, of Philadelphia. It exhibits almost every motion in the astronomical world ; the motions of the sun and all the planets, with all the satellites, the eclipses of the sun and moon."†

Many years later, long after the death of Rittenhouse, Adams wrote to Jefferson (March 14, 1814) concerning the orrery—and a slight touch of spleen may be noticed in it.—" As an anchorite, an honest dupe of the French Revolution ; a mere instrument of Jonathan Dickinson Sergeant, Dr. Hutchinson, Genet and Mifflin, I give him all the credit for his planetarium."‡

During the British occupation of Philadelphia, the orrery was an object of curious interest to the soldiery. Dr. Smith, who was a sympathizer in the cause of Great Britain, requested the commander of the English forces,

* The Writings of Thomas Jefferson; collected and edited by Paul Leicester Ford. New York : Putnam, 1894. Vol. iii, p. 169. Notes on Virginia.

† The works of John Adams. Boston: Little & Brown, 1850. Vol. ii, p. 355.

‡ Ibid., Vol. x, p. 90: The Writings of Thomas Jefferson. New York, 1859. Vol. vi, p. 324.

Sir William Howe, to protect in some manner the planetarium, for fear lest the soldiers might injure it. By order of Howe, the room which contained it was closed; and, we are told, "no person was permitted to enter the apartment to view the orrery, without the provost's consent; on which occasions he uniformly attended in person, with the keys kept in his possession."

When, through the fortunes of war, Philadelphia was relieved of its invaders, great solicitude was expressed by many as to the treatment which the orrery had received at the hands of the English soldiers. Thomas Jefferson was particularly anxious. "I sincerely congratulate you," he wrote to Rittenhouse from Monticello, on July 19, 1778, "on the recovery of Philadelphia, and wish it may be found uninjured by the enemy. How far the interests of literature may have suffered by the injury or removal of the orrery (as it is miscalled) . . . are doubts which still excite anxiety."

The one at Princeton was not quite so fortunate. When the British occupied the site of the College of New Jersey, the soldiers took a decidedly active interest in the orrery. They appropriated some of its intricate mechanism, and wheels were taken off as souvenirs of the war. The curiosity seeker was as rampant then as now. It was reported that the officers contemplated its removal to England—this at least shows that they appreciated its merits. To the honor of the officers, it must be also said that a guard was placed to protect it and keep it inviolate from the hands of the vandals. Later, after the battle of Princeton, and the retreat of the British from the town, the militia occupied the college buildings as barracks. They had not as much respect for the wonderful machine as the British soldiers. They toyed with its delicate wheels, and removed some of them. The militiamen, however, did not destroy the fine philosophical apparatus, then the property of Princeton College; the British had been there before

them, and accomplished this part of their duty in the most approved military fashion.*

When the "free and independent" States formally declared war upon Great Britain, Congress sent as a diplomatic agent to France a most extraordinary man—Silas Deane. His mission was to make a treaty of alliance between the two countries against England. Marie Antoinette and Louis then ruled the destinies of France, and Deane was most anxious to conciliate the queen. On November 28, 1776, he wrote to the secret committee of Congress, and suggested that the gift of various "trifles" would be "money well laid out with a certain personage." The orrery constructed by Rittenhouse was one of the objects which he asked Congress to grant him.† A week later he again wrote to the secret committee, that the "Queen was fond of parade, and I believe wishes a war, and is our friend." Again he suggests Rittenhouse's orrery as a fit object to win over the queen's influence. "It would be a great curiosity at the court at Versailles, where everything American is gazed at."‡

Barlow, in his "Vision of Columbus," alludes, in Popean couplets, to the fame of the Rittenhouse orrery.

* Various attempts have been made to restore the orreries to their first and original condition. From the History of the College of New Jersey, from its Origin in 1746 to the Commencement in 1854, by John Maclean, Philadelphia, 1877, many facts can be gleaned. On May 6, 1795, "Dr. Green was requested to wait upon Dr. Rittenhouse and request him to repair and complete the orrery belonging to the college." Vol. ii, p. 7. At a special meeting on January 13, 1796, Dr. Green reported that he had spoken to Dr. Rittenhouse respecting the orrery, but had not obtained any satisfaction on the subject. He was requested to pursue the matter. Vol. ii, p. 12. In 1796 the Legislature of New Jersey made a grant of money to the College on condition that "the money to be paid to said Trustees shall be laid out and appropriated to and for the repair of the buildings of the College, its library, Orrery and philosophical apparatus." Vol. ii, pp. 23-24. Mr. Henry Voigt, of the United States Mint, repaired this orrery as he had done that belonging to the University of Pennsylvania. "Beyond all question," remarks Dr. Maclean "it (the orrery) was regarded by the learned and the ignorant as the greatest mechanical contrivance of the age."

† Force's American Archives, 5th Series, III, 900. *Vide*, Historical and Biographical Sketches by Samuel W. Pennypacker, Philadelphia, 1883, which contains an interesting account of the orrery.

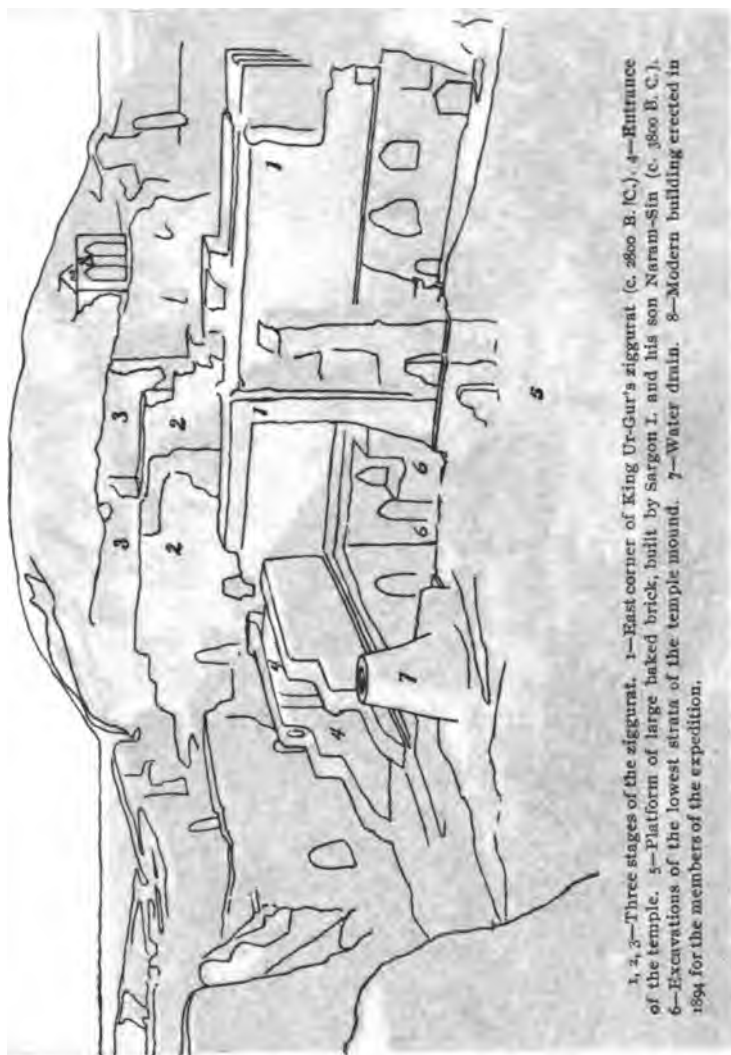
‡ The Revolutionary Diplomatic Correspondence of the United States. By Francis Wharton. Washington, 1889. Vol. ii, p. 214.

The Columbiad was once thought to be the great American epic, and perhaps it will not be out of place to reprint a few of its lines here :

" See the sage Rittenhouse, with ardent eye,
Lift the long tube and pierce the starry sky ;
Clear in his view the circling systems roll,
And broader splendors gild the central pole.
He marks what laws the eccentric wanderers bind,
Copies creation in his forming mind,
And bids, beneath his hand, in semblance rise,
With mimic orbs, the labours of the skies.
There wond'ring crowds with raptured eye behold
The spangled heav'ns their mystic maze unfold ;
While each glad sage his splendid hall shall grace,
With all the spheres that cleave the ethereal space."*

Interest in the orrery was long kept alive at the College of Philadelphia ; and for many years after the latter had become the University of Pennsylvania, the orrery itself was handed down to fame through reproduction as the sometime corporate seal of the Trustees.

* The Vision of Columbus ; a Poem in nine Books ; by Joel Barlow, Esq. Hartford : Hudson and Goodwin, 1787 ; p. 208.



1891 for the members of the expedition.

0—Excavations of the lowest series of the temple mound. 1—House (main). 2—House (right) and (left) in the same line. 3—House (left) of the temple. 4—House (right) of the temple. 5—House (left) of the temple. 6—House (right) of the temple. 7—House (left) of the temple. 8—House (right) of the temple. 9—House (left) of the temple. 10—House (right) of the temple. 11—House (left) of the temple. 12—House (right) of the temple. 13—House (left) of the temple. 14—House (right) of the temple. 15—House (left) of the temple. 16—House (right) of the temple. 17—House (left) of the temple. 18—House (right) of the temple. 19—House (left) of the temple. 20—House (right) of the temple. 21—House (left) of the temple. 22—House (right) of the temple. 23—House (left) of the temple. 24—House (right) of the temple. 25—House (left) of the temple. 26—House (right) of the temple. 27—House (left) of the temple. 28—House (right) of the temple. 29—House (left) of the temple. 30—House (right) of the temple. 31—House (left) of the temple. 32—House (right) of the temple. 33—House (left) of the temple. 34—House (right) of the temple. 35—House (left) of the temple. 36—House (right) of the temple. 37—House (left) of the temple. 38—House (right) of the temple. 39—House (left) of the temple. 40—House (right) of the temple. 41—House (left) of the temple. 42—House (right) of the temple. 43—House (left) of the temple. 44—House (right) of the temple. 45—House (left) of the temple. 46—House (right) of the temple. 47—House (left) of the temple. 48—House (right) of the temple. 49—House (left) of the temple. 50—House (right) of the temple. 51—House (left) of the temple. 52—House (right) of the temple. 53—House (left) of the temple. 54—House (right) of the temple. 55—House (left) of the temple. 56—House (right) of the temple. 57—House (left) of the temple. 58—House (right) of the temple. 59—House (left) of the temple. 60—House (right) of the temple. 61—House (left) of the temple. 62—House (right) of the temple. 63—House (left) of the temple. 64—House (right) of the temple. 65—House (left) of the temple. 66—House (right) of the temple. 67—House (left) of the temple. 68—House (right) of the temple. 69—House (left) of the temple. 70—House (right) of the temple. 71—House (left) of the temple. 72—House (right) of the temple. 73—House (left) of the temple. 74—House (right) of the temple. 75—House (left) of the temple. 76—House (right) of the temple. 77—House (left) of the temple. 78—House (right) of the temple. 79—House (left) of the temple. 80—House (right) of the temple. 81—House (left) of the temple. 82—House (right) of the temple. 83—House (left) of the temple. 84—House (right) of the temple. 85—House (left) of the temple. 86—House (right) of the temple. 87—House (left) of the temple. 88—House (right) of the temple. 89—House (left) of the temple. 90—House (right) of the temple. 91—House (left) of the temple. 92—House (right) of the temple. 93—House (left) of the temple. 94—House (right) of the temple. 95—House (left) of the temple. 96—House (right) of the temple. 97—House (left) of the temple. 98—House (right) of the temple. 99—House (left) of the temple. 100—House (right) of the temple.

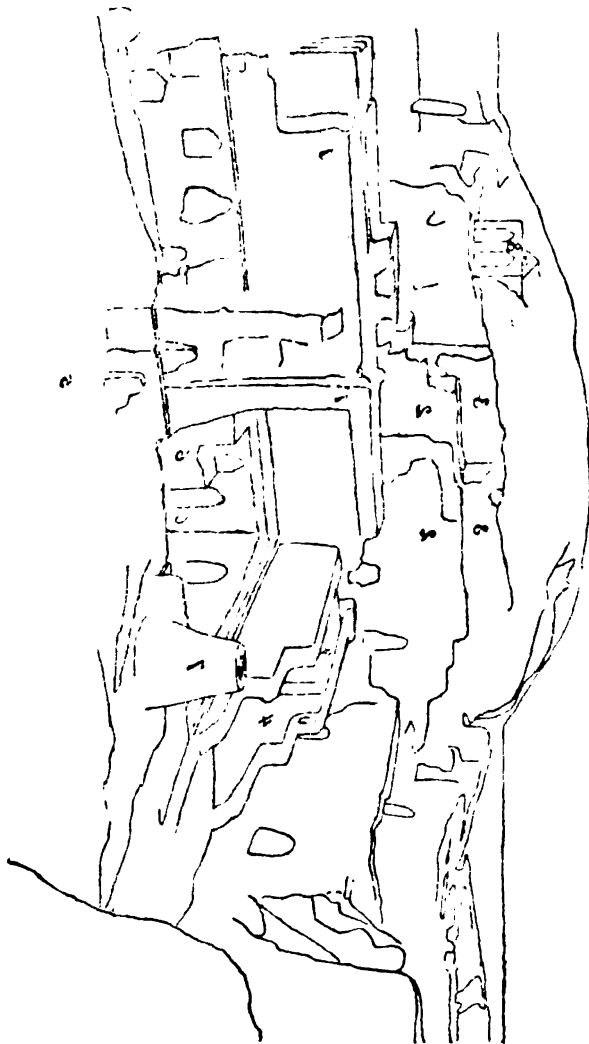




PLATE 7. The Mound at Nippur.

THE RECENT EXCAVATIONS OF THE UNIVERSITY AT NIPPUR.

BY PROFESSOR H. V. HILPRECHT.

In my last report, published in the *Bulletin*, January, 1899, I gave a brief review of the history of our new expedition to Babylonia from the day when I left Philadelphia (May 19, 1898) for Constantinople, in order to secure a firman, to the time when the first members of the staff arrived at Nippur. A large number of Arab workmen having been engaged at Hillah where all our tents, utensils and camp outfit had been stored for the last three years, it was decided to make the trip to Nippur by way of the Euphrates and the canal which connects the Affej swamps with the latter. In six sailing boats, later drawn by half-naked Arabs, Dr. Haynes and his party left for the ruins to be excavated, on February 1, arriving five days later at Nippur.

The Affej tribes, in whose territory the large mounds are situated, gave to the expedition a hearty welcome, accompanied by shooting, shouting, dancing and singing, evidently delighted to have the members of the expedition once more in their midst. Where formerly poverty and distrust of travelers and explorers ruled, a change had gradually taken place among the natives. In consequence of the comparatively great amount of money paid to Affej workmen in the trenches, and to their chief shaykhs for protection afforded to the party, and for milk, eggs, mutton, chickens and other provisions regularly furnished to our camp, the Arabs had learned to regard our work as extremely advantageous to their own interests. Also the hundreds of sick people, suffering principally from pulmonary diseases, typhoid and malarial fevers, who had received

help and comfort from us in the past years, had been our best agents among their relatives and friends in the different tribes.

As ten years ago, when we went to Nippur the first time, Haji Tarfa was commander-in-chief of all the Affej, with his residence at Sûq-el-Affej, a few miles to the southeast of Nippur. Surrounded by his minor shaykhs and other dignitaries of the El-Hamza tribes, he received our expedition-corps. The former arrangements with the two shaykhs, Hamid el-Birjud and Abud el-Hamid, were ratified and new pledges given for the security and welfare of our expedition, the supplying of guards and water (which had occasionally been stopped previously) being especially emphasized. Everything was soon arranged satisfactorily for the two contracting parties. Following the general Oriental custom, and desiring to show appreciation for the care with which the Arabs, during our absence, had guarded the expedition's stronghold—a mud castle erected on the plain half way between the ruins and the marshes—the members of the expedition prepared for their Affej hosts a great feast, at which plenty of mutton, boiled rice and thin barley cakes were eaten by some fifty Arabs. The old bond of friendship was thus cemented anew with “bread and salt.”

According to the latest news received, which is dated April 8, the general health of the camp is good. But the activity on the field was greatly interfered with during the past months by the serious illness of Mr. Geere, one of the architects, who contracted pleuro-pneumonia and typhoid fever in rapid succession immediately after his arrival in Bagdad, December, 1898. He had to be left in “the glorious city of the caliphs,” where he could have medical attendance and a certain amount of comfort. During all his illness and convalescence, which lasted over three months, he was nursed by the other architect, Mr. Fisher, of Philadelphia, a graduate of the Department of Archi-



PLATE 8. Mud Castle and Encampment of the Nippur Expedition.

ture at the University of Pennsylvania. They have not yet arrived at Nippur.

The actual excavations were begun on February 6, and were carried on in accordance with advices from the Philadelphia committee. Mr. E. W. Clark, chairman of the committee, who had eagerly watched and studied our past results, offered valuable suggestions. The present writer, acting as scientific director, was requested to prepare plans for the new campaign on the basis of his technical knowledge of the contents of the cuneiform inscriptions and the other finds, and his personal experience in the field. Following the instructions received from us, Mr. Haynes began to cut deep trenches into the southeastern mounds on the west side of the canal which divides Nippur into two nearly equal parts.

The results obtained during the first eight weeks of the excavation have fully realized our expectations. A long wall of an apparently important and very ancient structure built of kiln-burned bricks has been discovered and traced a distance of nearly five hundred feet, by a series of open trenches and tunnels at a considerable depth. The precise character of this wall and what it enclosed cannot be fixed, until I have received the technical report from the architects and squeezes of the inscriptions found in its neighborhood. On the level of the plain, twenty-three feet below the surface of the mounds, another arch of burned brick, and part of a water course, were excavated. One hundred and ninety-five tombs have been opened and examined. All the bones and skulls which allow of transportation were saved. Of the sarcophagi only such specimens will be removed as form an important link in the history of Babylonian burial customs, and which are valuable from an archaeological standpoint, both the Imperial Ottoman Museum and our own University Museum having been supplied with the most representative types from the results of our last campaign. A large number of vases,

many nose-, ear-, finger-rings, anklets, bangles, bracelets, beads, etc., of silver, copper and stone were found in the tombs. A jar was discovered which contained miscellaneous coins and articles of jewelry, all belonging to the latest period of Babylonian history. Of especial value are ten bronze cups, bowls and mirrors, some of them of beautiful form and fine workmanship.

The most important find, however, from the rescued cuneiform tablets and other inscribed objects. Nearly fifteen hundred tablets and large fragments have so far been taken out of these newly-opened trenches. Apparently we have found another archive in the lower strata at a considerable depth below the present level of the plain. A large lump of earth, three and a half feet by one and a quarter feet, containing two layers of large unburned tablets, was brought in bulk to "the castle" to dry before they were extracted. Among the other remarkable objects which deserve notice to-day, seventeen seal cylinders, seven inscribed steles of baked clay and several fragments of a large burned clay cylinder may be mentioned. As stated above, I have not yet received squeezes of these objects to determine their age from their contents and paleographical evidence. From general indications and past experience I am inclined to assign the bulk of the tablets and the inscribed steles to the period 2500-1800 B. C.

The number of workmen at present employed in the trenches is two hundred and eight. As soon as the two architects have arrived it is our intention to have the search for the city gates, so successfully begun, rigorously continued. A considerable gang of Affej will then be dispatched to the temple hill on the eastern side of the Shatt-en-Nil to explore the lowest strata of the temple of Bel, which yielded the hundreds of small but important Old Babylonian vase fragments, from which I was enabled to restore the important texts of King Lugal-zaggisi and other powerful monarchs ruling in the fourth and fifth



PLATE 9. Arab Hut with Household Utensils. Mounds of Nippur in the rear.

pre-Christian millenniums. I have no doubt that in the course of our excavations we will find a considerable number of other fragments of large statues in diorite, of which we have found portions of shoulders, noses, ears, clasped hands, and even the whole trunk of a human being in two-third life size. They all belong to a period antedating 2800 B. C.

May 19, 1899.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

UNITED STATES.

A burial jar with its cover and contents (13,250) from Durand's Bend, Dallas County, Ala., has been presented by the collector, Mr. Clarence B. Moore. The jar is of smoothed, unpainted pottery, 12 inches in height, nearly globular in form and having a ribbed edge. Its greatest diameter is 17 $\frac{1}{2}$ inches, with an aperture of 11 $\frac{3}{4}$ inches. The cover, which is nearly hemispherical, 17 $\frac{3}{4}$ inches in greatest diameter, is the lower part of a similar jar. Associated with the contents, the skeleton of an infant, is a shell bead, a small shell gorget with two perforations, and a perforated shell.

A brick (12,796) and fragments of Indian pottery (12,797) from near Belhaven, Beaufort County, N. C., have been presented by Mr. Walter K. Ludwig. The brick, roughly hand-made, formed part of the lining of an underground pit (oven or grave) located on the farm of Mr. Julius Norfleet, on Pungo Creek. These pits, of which two were examined by Mr. Ludwig, are about 3 feet in diameter and 2 $\frac{1}{2}$ feet deep. The bricks used in their construction are about 4 inches long by 2 inches in thickness and made to fit in circles. They are arranged in regular layers with broken joints, with clay between the joints, the whole burned in place. The walls are about a foot thick, harder on the surface than at the back. The pits contain a deposit of what appears to be lime to a depth of about four inches. There are two other similar pits about a mile further up the creek. Many fragments of pottery are found about this region where mounds of oyster shells have been.



PLATE 10. Brick-lined Pits, Belhaven, North Carolina.

Mr. Cushing, to whom the brick, together with photographs of the pits (Plate 10) were submitted, states that he regards the pits as probably oven-furnaces for food-curing, but that they may have been used in pottery-firing, especially in making "smudge" varieties. They may also have been used for calcining oyster shells for use in tempering pottery. The shards collected from the surface are coarse ware, tempered with sand and pulverized quartzite, and are not regarded by Mr. Cushing as connected with the pits.

Two iron-pointed arrows (21,589), Cheyenne or Arapahoe, have been presented by Mrs. Thomas Balch.

A Penobscot Indian birch bark canoe (21,456), 15½ feet in length, with paddle, from Maine, has been presented by Dr. Henry C. Wood.

WEST INDIES.

Two carved calabashes (21,455, 21,598) from Trinidad, collected about sixty years ago and said to have been made by the half-breeds who live in the woods, have been presented by Mr. Charles D. Clark.

MELANESIA.

Gilbert Islands. A sword or dagger (16,114) set with sharks' teeth has been presented by Mr. C. Howard Colket.

Solomon Islands. A bow (16,127) and thirty-four cane arrows (16,126) and a club (16,133) have been presented by Mr. Colket.

ASIA.

THE FAR EAST.

Mrs. John Stronach has deposited two embroidered silk hangings (21,609-10) and two written scrolls (21,611), presented to her late husband, the Rev. John Stronach, upon his leaving China.

Two Chinese painted clay toys representing a man (21,518) and a woman (21,519), purchased in Bangkok, and two Siamese cotton-cloth dolls (21,520-21), a papier-mache Siamese toy woman (21,522) and three small Siamese clay toy images of actors (21,623), have been presented by Dr. H. M. Hiller.

ISLAND ASIA.

Philippine Islands. Mr. C. Howard Colket has presented the following objects :

16,007-8. Two wooden images, male and female, about 17½ and 16½ inches in height, carved from single blocks of hard wood, Plate 11. Both have ear-rings made of brass wire and loin cloths of native fabrics, with knives in wooden scabbards depending from their girdles. The male originally grasped a spear in one hand and a shield in the other. Igorrotes of Luzon.

16,006. Miniature wooden image, 4 inches in height.

16,122. Two swords made of the toothed blades of a sword-fish. One (Fig. 49) double, with handle cut at end, and the other (Fig. 50) single, made by dividing a blade. Igorrotes of Luzon.

16,116. Axe (Fig. 51). Weapon of Igorrotes of North Luzon.

16,117-19. Three spears. Igorrotes of North Luzon.

16,115. Two steel spear points. Igorrotes of North Luzon.

16,121. Wooden shield (Fig. 53). Igorrotes of North Luzon.

16,120. Wooden shield (Fig. 53). "Moros" of Mindanao.

16,132. Sword, with carved wooden hilt ornamented with tufts of human hair, *Campilan* (Fig. 54). "Moros" of Mindanao.



PLATE 11. Wooden Images. Height $16\frac{1}{2}$ and $17\frac{1}{2}$ inches. Igorrotes of Luzon, Philippine Islands. Catalogue Nos. 16,007-8, Free Museum of Science and Art.

16,130. Long curved sword. Fig. 55. Symbol of authority of native chiefs among the "Moros" of Sulu.

16,124. Two *barong* (Fig. 56). "Moros" of Sulu.

16,125. Two straight kries (Fig. 57). "Moros" of Sulu.

16,123. Sword of cocoanut wood (Fig. 58) used by the natives (disarmed by the Spaniards) in theatrical representations.

The Moros make their own steel weapons, which are often beautifully finished, and are always admirably adapted to the purposes for which they are intended. In close combat they usually trust to a *barong*—a weapon fashioned somewhat on the plan of a butcher's cleaver, with thick back and thin razor edge. It is capable of inflicting fearful injury. To lop off a hand, arm, or leg with a *barong* is merely child's play. The strong and skillful warrior prides himself on being able to halve an opponent—if he can catch him fairly across the small of the back. Executioners use heavy, two-handed knives for beheading their victims. The straight kris is a narrow-bladed double-edged sword, used for cutting and thrusting. The serpent *kris*, with its wavy, double-edged blade, is used for thrusting, and inflicts a horrible wound.

The *campilan* is a straight-edged, two-handed sword, with a blade wide at the tip, and steadily narrowing toward the hilt. It is used for cutting only, and is tremendously effective.

Under all circumstances, a Moro carries *barong*, *kris*, or *campilan* thrust into his sash. If he expects serious trouble, he has in addition a shield of light wood, and a lance with a broad, keen head.—"The Philippine Islands." By Dean C. Worcester, New York, 1898, p. 154.

AFRICA.

A native African sword (21,528) with brass and copper wrapped hilt and snake skin scabbard, said to have been taken in battle by French troops, has been presented by Dr. Persifor Frazer. It may be identified as made by the Fan of the West Coast.

EUROPE.

Holland.—A court sword (16,103), inscribed *Jacobus Conradus Mr. zwert veger* (Amsterdam), has been presented by Mr. Colket.

Russia.—A set of peasant jewelry (21,615), consisting of a brooch and pair of earrings in silver niello, the brooch inscribed "Caucasus," have been presented by a friend of the Museum.

Spain.—Mr. Colket has presented the following Spanish swords, purchased in Madrid :

16,101. Bull-fighter's sword. Toledo.

16,102. Dress sword with gilded hilt. Toledo, ca. 1800.

16,104. Sword, 17th century. Semi-cup-shaped guard.

16,105. Spanish rapier. Cup guard with pierced floriated design.

16,106. Sword. Early 19th century.

16,107. Sword. Grip wrapped with copper wire. Large hemispheric pommel ; drooping quillions. Toledo. 183-.

16,108. Sword. Similar to preceding. Dated 1799.

16,109. Dagger with brass mounted wooden hilt and scabbard. Toledo.

16,110. Dagger. Wooden haft. Blade inscribed, "*Ara-maio fecit. Defensor de mi dueño.*"

Mr. Colket has also presented a pair of *alpargatas*, sandals (15,954), worn by the peasantry in Castile and a collection of ten *reclamos*, lures (15,976-85) used by sportsmen for imitating the cries of various birds: wild duck, cuckoo, sparrow, quail, lark, crow and partridge, and rabbit. The latter, purchased in Madrid, are probably of French or German manufacture.

A clay figure (21,086) of a man in native costume from Seville has been presented by Mrs. Lucy Wharton Drexel.

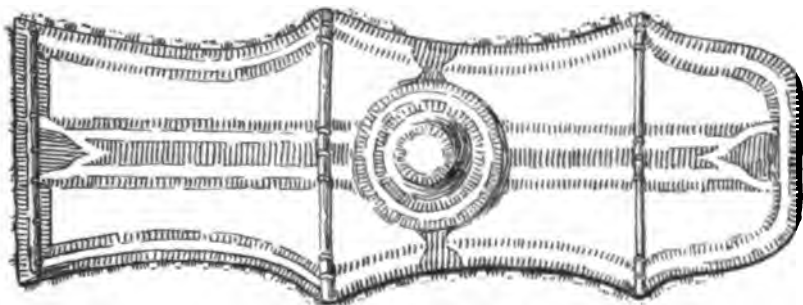


Fig. 53.

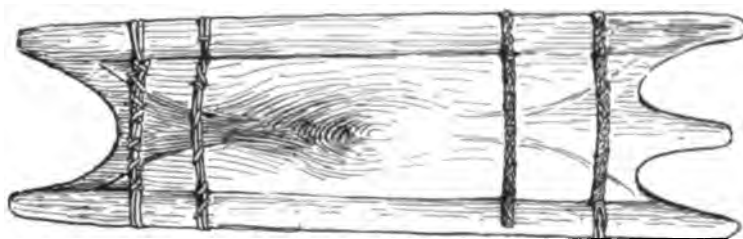


Fig. 52.



Fig. 51.

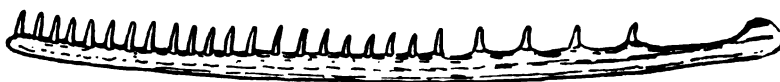


Fig. 50.

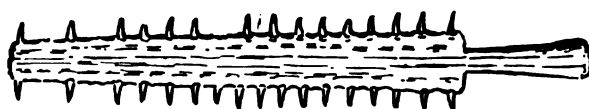


Fig. 49.

Weapons of Natives of the Philippines.

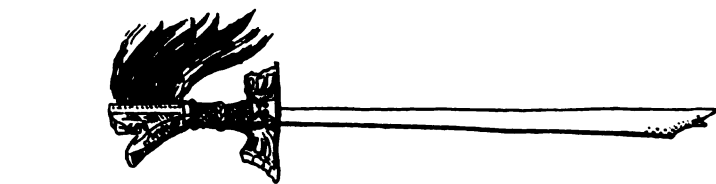


Fig. 54.



Fig. 55.

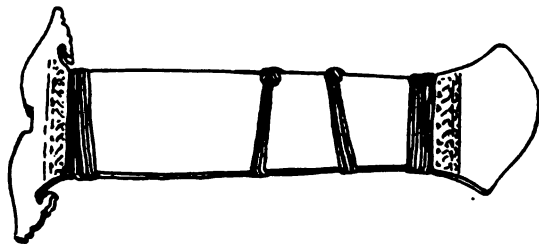


Fig. 56.

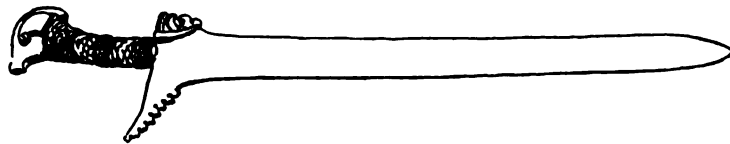


Fig. 57.

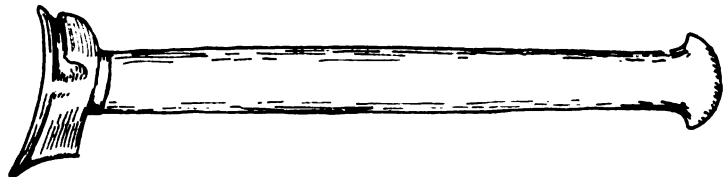


Fig. 58.

Weapons of Natives of the Philippines.

SPECIAL COLLECTIONS.

American History.—Two rooms have been set apart on the lower floor of the new Museum Building for the exhibition of objects illustrative of colonial manners and customs, with an intermediary room devoted to the history of the University of Pennsylvania. The following objects have been already placed in the University's room:

The Rittenhouse Orrery (21,592). See p. 73.

Chair (21,599) of John Ewing, D. D., Provost from 1780 until his death in 1802. Chair (21,600) of John Ludlow, D. D., LL. D., Professor of Moral Philosophy and Provost from 1834 to 1853. Both chairs were given by Miss Ludlow, a daughter of Provost Ludlow.

Two plaster casts (21,616) of old boundary stones between the States of Pennsylvania and Maryland, one with the arms of Penn and the other with those of Calvert, have been deposited by the Numismatic and Antiquarian Society of Philadelphia. Also three photographs of (shadow) silhouettes of Mrs. Washington, General Washington and Franklin (21,617-9), from the originals in Independence Hall, Philadelphia.

Mrs. George Biddle has deposited a collection of autograph letters addressed to her grandfather, Dr. David Hosack, by Thomas Jefferson (3), Martin Van Buren, Washington Irving (2), Lafayette, Alexander Von Humboldt and Sir Humphrey Davy.

A wooden canteen (21,517) purchased at the sale of the equipment of Fort Duquesne at the time of its abandonment about the beginning of the present century, has been obtained by exchange from Mr. Thomas Harper, curator

of the Western Pennsylvania Historical Society, Pittsburg, Pennsylvania.

A 5.5-inch armor-piercing projectile (21,529), obtained by the donor from the after magazine of the Spanish armored cruiser "Infanta Maria Teresa," has been presented by Lieutenant W. W. Gilmer, U. S. A.

An apple parer (21,597) marked "J. J. H." (J. J. Hauer) "1824," purchased from Mr. W. A. Hatch, Columbia, New York, has been presented by Mr. William D. Frishmuth.

Fans.—Mrs. Lucy Wharton Drexel has made the following additions to her collection :

21,607-8. Chinese, Peking. Embroidered silk palace fans, *kung shin*, said to have been the property of the Eastern Empress-Dowager, the widow of the Emperor Hienfung, who died in 1881.

21,469. Chinese, Canton. Old folding feather fan, *mò shin*, painted with flowers, and figures in medallions. Ivory sticks and guards.

21,584. Chinese, Canton. Old folding feather fan, *mò shin*, painted in blue and silver with figures and flowers. Ivory sticks and guards.

21,547. Chinese, Canton, eighteenth century. Folding ivory fan carved with flowers and birds in lace designs.

21,583. Chinese, Canton. Folding sandal-wood fan with painted leaf ornamented with Chinese figures having applied ivory faces and silk robes, *t'àn héung yat mat kün shin*.

21,546. Chinese, Shanghai. Circular silk screen fan, *kün üt shin*, painted with Chinese illustration of the parable of the guest without a wedding garment (Matthew, 22, 1-14).

21,551. Chinese, Canton. Gilt paper fan, *kam min shin*, written in New York City for Mrs. Drexel.

21,588. Japanese. Iron fan, *tessen*. Iron guards, inlaid with dragon in silver. Paper leaf, one side silver and on the other gold, both with red disks in centre. Length, 14

inches. Such fans were formerly used by officers of the army, both for signaling commands and as a weapon.

11,578. Japanese Imperial audience fan, said to have belonged to the late mother of the present Emperor. Painted by Mitsutaki Tosa, a famous artist who died about seventy or eighty years ago. A folding fan, *ogi*, of *hinoki* (a kind of cedar) with 36 sticks and 2 guards, 15½ inches in length. Obverse painted with six clouds, three gold with red edges and one gold with green edges, and one silver with purple and one with blue edges, and a plum tree in blossom. Reverse, two gold clouds with red edges, one with blue edges, and two silver clouds, one with purple and one with green edges, on a white field, with butterflies and dragonflies. Six silk cords about seventy inches in length and of different colors; yellow, pink, green, purple red and white, knotted and braided and interlinked at upper part, are attached to each guard near its upper end, together with a bunch of artificial flowers: orange, cherry, red plum and pine bough.

21,582. Japanese. Dancing fan from Kasuga temple at Nara. A folding fan of *hinoki* with 23 sticks and 2 guards, 12½ inches in length. Obverse painted with two silver clouds, one with green and one with red edges, and with three gold clouds, one with red and two with blue edges, and with pine tree, plum flowers, stork and fabulous tortoise. Reverse with two silver clouds, one with blue and the other with red edges, and two gold clouds, one with green and the other with red edges, butterflies and dragonflies. Six silk cords about 30 inches in length and of different colors: green, yellow, red, white, pink and black braided and interlinked at upper part, are attached to each guard near its upper end, with a small bunch of artificial flowers: cherry, orange blossoms and pine. This fan was purchased at Nara directly from the dancing stage, and from the hands of the priestess by whom it was used.

21,579. Japanese. Folding fan, *ogi*, with painted paper

leaf and bamboo sticks. Bought from a Buddhist priest in the temple of Shiba.

21,581. Japanese. Folding fan, *ogi*, with painted paper leaf and bamboo sticks. Bought from a Buddhist priest at Kioto.

21,580. Japanese. Folding fan, *ogi*, with painted paper leaf and bamboo sticks. Bought after being used for dancing from a Shinto priestess at Nikko.

21,545. Japanese. Ivory folding fan, *ogi*, by Shibayama of Tokio. Twenty-one sticks painted in gold lacquer, on both faces with pheasants and tiger lilies and sparrows and autumnal grass. Guards inlaid with designs of swallows and cherries in lacquer and mother of pearl. Clasp of chased silver. *Ojime*, ivory, decorated with gold lacquer. This fan was made in 1875-1876 and was painted for the Centennial Exposition in Philadelphia.

21,544. Japanese. Folding fan, *ogi*, with painted silk leaf: riders on ponies. Black lacquered sticks.

21,612. Singhalese, Kandy. Circular screen fan, made of strips of palm leaf, folding into unpainted wooden handle. Used by priests on walks and in travel. Length, closed, 14½ inches.

21,613. Singhalese, Kandy. Carved ebony handle of priest's fan. Length 16½ inches.

21,614. Bornean. Punans of Tinjar River. Fire fan, made of palm leaf, sewed with fibre, of triangular shape. Length, 15 inches.

21,442. French, Louis XIV. Folding fan, swanskin painted with "The Feast of Diana." Carved pearl sticks inlaid with gold.

21,602. French. Sketch by Bouguereau mounted in silver gilt as a screen.

21,550. Italian folding fan with swanskin leaf and carved and gilded pearl sticks. Painted in Rome for Mrs. Ulysses S. Grant and presented by her to Mrs. Drexel. With autograph and monogram of Mrs. Grant.

21,605. Spanish. *Cabriolet*. Paper leaves, with applied colored lithographs. Carved and gilded bone sticks. Purchased in Havana.

21,606. Spanish. Folding fan, with colored lithograph leaf and carved and gilded pearl sticks. Purchased in Havana.

21,556. German, 18th Century. Folding fan with *gouache* painting on paper leaf. Decorated with panels of cut paper inlaid with isinglass, and ornamented with flowers and figures in Chinese style. The central group of figures represents Apollo seated with two Muses, Juno in the clouds and Marsyas pleading before her. The sticks are of ivory, decorated in the style of vernis Martin. (No. 1266, German Fan Exhibition, Karlsruhe, 1891.)

21,535. English. Fan leaf. Paper, with copper-plate engraving "The Ladies' Bill of Fare, or a Copious Collection of Beaux." Published by G. Wilson, 14th Feb., 1793.

21,472. English. 1797. Fan leaf. Paper with copper plate engraving "The Lady's Adviser, Physician and Moralist." London. Published by Ashton & Co., Jan. 1, 1797.

21,533. English. Fan leaf. Paper, with copper-plate engraving, "The World Grown Odd and Crazy." London : Published by Ashton & Co., No. 28 Little Britain, April 12th, 1797.

21,532. English. Fan leaf. Paper, with copper-plate engraving, "Riddles." Published by Sarah Ashton & Co., January 1, 1797.

21,534. English. Fan leaf. Paper, with copper-plate engraving, botanical lesson. Obverse and reverse.

21,541. English. Fan leaf. Paper, with colored copper-plate engraving, "The Rotunda at Raneligh."

21,536. English. Fan leaf. Paper, with copper-plate engraving, "Crescent Buxton."

21,542. English. Fan leaf. Paper, with colored copper-plate engraving: Casket scene from the Merchant of Venice. M. Hollis, 1746.

21,543. English. Fan leaf. Paper, with colored copper-plate engraving, scenes from "The Sentimental Journey," 1796.

21,473. English, 1813. The French in Spain. Fan leaf. Paper, with colored engraving. Legend, "*Día 19 de Marzo de 1808 En Aranjuez. Caída y prisión del Príncipe de la Paz.*" Published by Messrs. Behrmann & Collmann, London.

21,540. English. The French in Spain. Fan leaf. Paper, with copper-plate engraving. Madrid, 2 May, 1808. Published by Behrmann & Collmann, London, December 15, 1813.

21,537. English. The Peninsular War. Fan leaf. Paper, with colored copper-plate engraving, Ferdinand VII, in medallion, surrounded by English and Spanish standards. Published by C. Sloper, Lambeth Road, London.

21,471. English. Fan leaf. Paper, with colored engraving, "Marquis of Wellington, Duke of Ciudad Rodrigo, etc."

21,534. English. Fan leaf. Paper, with copper-plate engraving, Wellington, Duque da Victoria. Medallion portrait.

21,539. English. Fan leaf. Paper, with copper-plate engraving, allegorical design, bust of Wellington, and emblematic figures of Britannia and Spain.

21,549. English. End of 18th Century. Folding bone fan with applied medallions: prints in color.

21,439. English Jubilee fan of black gauze spangled, with letters of V. R. in the centre. Red pearl sticks with red enamel ornament embossed with a flower of diamonds, and 1897 in small figures at top, on outer guard.

21,440. English Jubilee fan, painted on rainbow gauze. A coach in Brussels lace, with two figures, drawn by four cupids and driven by one as coachman and one behind as footman. Signed "Bellini." Brussels point lace border. Pearl sticks with inlaid design of violets.

21,441. English Jubilee fan. Wedgewood designs on green silk. Three plaques ornamented with spangles. Enameled and spangled pearl sticks. Reproduced from one in the prize case.

21,470. Fan leaf. Vellum, with miniature portrait of Madam Duse. Painted by William F. Kline. With autograph of Madam Duse.

21,552. Fan leaf. Vellum, with miniature portrait of Madam Sarah Bernhart. Painted by William F. Kline. With autograph of Madam Bernhart.

21,553. Fan leaf. Vellum, with miniature portrait of Coquelin. Painted by William F. Kline. With autograph of Monsieur Coquelin.

21,601. Fan leaf. Aquarelle by John La Farge : "Fayaway Sailing Her Boat."*

21,466. African. Mandingo circular hide fan with white hair on one face. Leather covered handle, wrapped with green leather. Diameter, 10 inches. From Liberian Exhibit, Columbian Exposition.

21,467. African. Tuggurt woven palm leaf fan with designs worked in zephyr and tinsel cord. Bound with blue cord with blue silk tassels at edge, and with small circular mirror set on one face. Stick, midriff of palm.

21,468. African. Tuareg woven palm leaf fan with cut leather decoration and colored silk tassels. Stick, midriff of palm.

21,548. Samoan. Leaf-shaped fan, *ili*. Woven strips of palm leaf in open work design. Red wood handle attached by wrapping of human hair cord.

Fire-making and Lighting.—A pair of bronze lamps (21,508), Empire style, made by Gardnier, New York, have been presented by Mrs. Jacob H. Lazarus.

Games.—The following collection of implements used

* See "Typee." By Herman Melville, New York, 1849, p. 155.

in games were made in the Museum by four Hawaiian sailors from Honolulu :

- 21,447. Cat's cradle, *pa-pi-o-ma-ka-lii-lii*.
- 21,448. Cat's cradle, *pa-pi-o-ma-ka-nu-i-nu-i*.
- 21,449. Cat's cradle, *pau-ma-wai*, "pump."
- 21,450. Cat's cradle, *pa-hi-o-lo*, "saw."
- 21,451. Cat's cradle, *pou*, "post."
- 21,452. Cat's cradle, *ko-he*, "vagina."
- 21,453. Cat's cradle, *a-ha-ma-ka*.
- 21,491. Cat's cradle, *hoo-ko-mo*.
- 21,492. Cat's cradle, *é-ki-ma-nu*, "ace of diamonds."
- 21,493. Cat's cradle, *ma-ka-u-pe-na*.
- 21,494. Cat's cradle, *ma-hi-ki*, "see saw."
- 21,495. Cat's cradle, *po*, darkness.
- 21,496. Cat's cradle, *wai-u-la-wa*, "full breasts."
- 21,497. Cat's cradle, *a-na-ma-nu*, "bird house."
- 21,498. Cat's cradle, *u-pe-na*, "net."
- 21,512. Cat's cradle, *o-ko-le-a-mo*.
- 21,515. Cat's cradle, *ha-le-ku-mu-ma-ka-a*.
- 21,526. Cat's cradle, *e-ki-ha-ka*.
- 21,527. Cat's cradle, *e-ki-pe-ki*.

The above were transferred from the fingers and attached to card-board.

- 21,445. "Canoe" puzzle, *pu-waa-pa*.
- 21,446. "Wood" puzzles (2) *pu-la-au*.
- 21,513. "String" puzzles (2) *pu-kau-la*.
- 21,454. "Bird kite" (frame only) *lu-pe-ma-nu*.
- 21,449. "Paper bird," *pe-pa-ma-nu*.
- 21,500. Paper box.
- 21,501. Paper tie.
- 21,502. Kapa tie.
- 21,503. Paper pin-wheel, *hu-i-la-ma-ka-ni*.
- 21,504. Kapa pin-wheel.
- 21,505. Kapa mat.
- 21,506. Kapa braid.
- 21,444. Set stone dice, *u-lu-lu-lu*.

The preceding are described in a paper by Mr. Culin, entitled "Hawaiian Games," American Anthropologist, New Series, Vol. I, No. 2, April, 1899.

A set of four wooden gaming tubes (21,585) for the Tewan game of *Cañute* has been purchased for the Museum by Mr. Thomas S. Dozier, of Santa Clara, New Mexico.

A set of four wooden gaming tubes (21,593) for the game of *cañute* has been presented by Dr. T. P. Martin, of Taos, N. M.

Mr. Harlan J. Smith has purchased for the Museum two sets of bone gaming cylinders (21,403-4) employed in their guessing game by the Kwakiutl Indians, of Fort Rupert, B. C., and has also presented a photograph (21,603) of the Indians playing the game. He also purchased a set of four beaver teeth dice (21,405) collected at Comox, B. C.

A Chinese bamboo humming top (21,464) and a shuttlecock (21,465), *kai mò ín*, from Canton, have been presented by Mr. Culin.

A pack of Chinese domino cards (21,511) from Canton, *tín chí p'di* occasionally employed by Chinese in Philadelphia, has been obtained by purchase from a Chinese shop in this city.

Mr. C. Howard Colket has presented a pair of wicker *cestas* (16,129) or baskets used in the Spanish game of *pelota* (ball), and a wicker mask in the form of a bull's head used by Spanish children in their play of *Toros*, in imitation of the bull fight; also a set of iron dominoes (16,246); two ball-shaped wooden dice (16,245) numbered with Arabic numerals from 1 to 12; wooden draught board and men (16,248); also an inlaid wooden board (16,249) for the game of *assaulto* (or siege, a kind of Fox and Geese) and an outfit (16,247) for the Spanish game of *loteria* or lotto, consisting of 90 numbered wooden balls and a board with 90 numbered holes used in the drawing, and 15 numbered boards for the players; also the following packs of Spanish playing cards:

16,265. Spanish pack of 48 cards. Sebastian Comas y Ricart, Barcelona.

16,272. Spanish pack of 48 cards. Sebastian Comas y Ricart, Barcelona.

16,268. Spanish pack of 48 cards. Jaime Garcia Forsas, Barcelona.

16,269. Spanish pack of 48 cards. Suit marks refer to four continents. Fulladosa y Ca., Barcelona.

16,266. Spanish pack of 48 cards. Wenceslao Guarro, Barcelona.

16,273. Spanish pack of 48 cards. Wenceslao Guarro, No. 5, Barcelona.

16,257. Spanish pack of 40 cards. Braulio Fournier, No. 1, Burgos.

16,261. Spanish pack of 40 cards. Braulio Fournier, No. 1, Burgos.

16,256. Spanish pack of 48 cards. Braulio Fournier, No. 3, Burgos.

16,270. Spanish pack of 40 cards. Braulio Fournier, No. 3, Burgos.

16,264. Spanish pack of 48 cards. Cadiz.

16,277. Spanish pack of 48 cards. Simeon Dura, Valencia.

16,278. Spanish pack of 40 cards, *Naipes Infantiles*. Simeon Dura, Valencia.

16,260. Spanish pack of 48 cards. Manaut Hermanos, No. 51, Valencia.

16,274. Spanish pack of 40 cards. Manaut Hermanos, No. 0 (toy), Valencia.

16,279. Spanish pack of 48 cards. Manaut Hermanos, No. 1, Valencia.

16,267. Spanish pack of 48 cards. Manaut Hermanos, No. 9, Valencia.

16,255. Spanish pack of 48 cards. Heraclio Fournier, Vitoria.

16,271. Spanish pack of 40 cards. Toy. Heraclio Fournier, No. 7, Vitoria.

16,262. Spanish pack of 40 cards. *Baraja Bebe* (toy).
16,263. Spanish pack of 40 cards. *Baraja de los Enamorados*. Miniature, printed in black with verses under the suit marks.

16,275. Spanish pack of 40 cards. *Baraja Mistica* (caricatures of the clergy).

16,259. Spanish pack of 48 cards. *Baraja Taurina* (with pictures of bull fighters).

16,258. Spanish pack of 48 cards. Mr. Colket has also given a Spanish card lottery game for children, *Loteria de naipes* (16,254), and the following French games:

16,250. *Jeu du Cheval Blanc*. Watilliaux Ed. Paris.

16,253. *Le Voyage à Pekin* (played with a teetotum). Watilliaux.

16,251. *Jeu de la Musique*. Paris.

16,250. *Toupie Lotto*. A kind of roulette, played with a metal humming-top.

A pack of German caricature playing cards (21,595) and "The Games of the States" (21,596) an early American card game designed for purposes of instruction, published by W. & S. B. Ives, Salem, 1845, have been presented by Miss Margaret W. Brooks, of Salem, Mass. Also a "canoe" puzzle (21,597) similar to the "canoe" puzzle (21,445) from Hawaii and identical in principle. It would appear likely that the Salem specimen was brought home by some sailor from the South Pacific, or else to have been introduced into Hawaii by American missionaries.

An ancient Roman die (21,443) of bone, regularly marked, and the following musical card games have been presented by Mrs. Lucy Wharton Drexel:

21,575. "The Great Composers."

21,576. "Allegando."

21,577. "The Game of Triad Cords."

All of the above published by Theodore Presser, Philadelphia.

Mr. Culin has presented the following puzzles:

- 21,457. "Lone Star War Puzzle."
- 21,458. "Cupid's Dart Puzzle."
- 21,459. "Mystery Puzzle."
- 21,460. "The Captive Indian Puzzle."

Numismatics.—The bronze medal (21,620) struck by the Numismatic and Antiquarian Society of Philadelphia in commemoration of its fortieth anniversary and the fifteenth year of the presidency of Dr. Daniel Garrison Brinton, has been presented by the Society.

Weights and Measures.—A Russian abacus (21,614) *tschotü*, has been presented by Mr. Isaac Husic, through Dr. Edgar A. Singer.

LIBRARY.

The following are among the most important acquisitions since the last issue of the BULLETIN:

Journal of the Kroatische Archäologische Gesellschaft, Agram, Austria. New Series. Vol. 3, 1898. Gift of the *Society*.

Proceedings of the Cechoslavic Ethnographical Museum, Prague, Vols. 4 and 5, 1889. Gift of the *Museum*.

Troisième Rapport au Ministre des Finances de la Directeur de l'Administration des Monnaies et Médailles. Paris, 1898. Gift of the *Director*.

"Brandenburgia." Monatsblatt der Gesellschaft für Heimatkunde der Provinz Brandenburg zu Berlin. Band 1-7, 1892-1898.

Archiv der "Brandenburgia." Gesellschaft für Heimatkunde der Provinz Brandenburg zu Berlin. Band 1-4, 1894-1897.

Gifts of the *Märkisches Provinzial-Museum*, Berlin.

Veröffentlichungen aus dem Königlichen Museum für Völkerkunde Berlin. VI Band, 1 Heft. Gift of the *Museum*.

Compte-Rendu de la Commission Impériale Archéologique pour l'année, 1895. St. Petersburg, 1897.

Matériaux pour servir à l'archéologie de la Russie, publiés par la Commission Impériale Archéologique, liv. 21 e. St. Petersburg, 1897. Gifts of the *Commission*.

Transactions of the Société des Chroniques Nestor, Kief, Russia. Vols. I-II. Gift of the *Society*.

Memoirs of the Historical and Antiquarian Society of Odessa, Russia. Vol. 21. Gift of the *Society*.

Clave General de Jeroglíficos Americanos de Don Ignacio Borunda. Manuscrit inédit publié par le Duc de Loubat. Rome, 1898. Gift of the *Duc de Loubat*.

Album von Philippine-Typen. Dresden, 1885.

Album von Celébes-Typen. Dresden, 1889. Gifts of *Dr. A. B. Meyer*.

Siam. On the Meinam from the Gulf to Ayuthia. By Prof. Maxwell Sommerville. Philadelphia, 1897. Gift of the *Author*.

EXCHANGES.

An exchange of publications has been made with the following institution since the last issue:

Märkisches Provinzial-Museum, Berlin.

final

RECEIVED,

JUL 18 1900

PEABODY MUSEUM.

BULLETIN

OF THE

Free Museum of Science and Art

OF THE

UNIVERSITY OF PENNSYLVANIA.

VOL II.

PHILADELPHIA, JANUARY, 1900.

No. 3.

THE DICKESON COLLECTION OF AMERICAN ANTIQUITIES.

BY STEWART CULIN.

The museum has recently come into possession, through purchase from his brother, of the collection of American antiquities of the late Dr. M. W. Dickeson.* The collection is

* Montroville Wilson Dickeson was born in Philadelphia in 1810. At an early age his father moved to Woodbury, N. J., where young Dickeson was educated. When at school he manifested a passionate interest in natural science and made a collection of birds, insects, reptiles and shells. He was handy at taxidermy and set up many of the specimens he obtained in his excursions in the fields. One of his delights was the cretaceous marl beds of lower New Jersey, and many were the visits he made there and the paleontological specimens he collected. In this connection he became widely known, not only as a collector, but as an authority on the fossils of that locality. About the year 1828 he entered the office of the elder Dr. Joseph Parrish and began the study of medicine. While there he wrote several monographs on the green sand fossils of New Jersey, which attracted the attention of Dr. Samuel G. Morton, Dr. Wilson, and Peter A. Brown, prominent men of science in Philadelphia. About this time he graduated and became a resident of the Philadelphia Dispensary. The passion for archaeological investigation took him to the valleys of the Ohio and Mississippi, where for seven years, from 1837 to 1844, he was a constant traveler, excavating many Indian mounds in

interesting historically through the prominence given to it by public exhibition in various places* through many years. As interpreted by its owner, it served as the basis of many popular notions about American archæology. Without accepting these notions or passing upon Dr. Dickeson's statements, the collection has a scientific value which cannot be disregarded, as it comprises material from mounds in Mississippi and Louisiana which have now entirely disappeared and concerning which other data are lacking.

search of relics. Most of the aboriginal monuments from which Dr. Dickeson obtained his finest specimens have long ago been leveled to the surface of the earth and their sites obliterated. He was particularly interested in Indian crania, and made numerous communications concerning them to Professor Henry for publication. At the old home of his parents the upper story and garret were stored with objects from the mounds, sent home from time to time in the course of his explorations.

Dr. Dickeson was the author of "The American Numismatic Manual," J. B. Lippincott & Co., Philadelphia, 1860, a standard work on American colonial and United States coinage.

He was a member of the Academy of Natural Sciences, of Philadelphia (elected October, 1846).

* In the South, it appears from newspaper cuttings, that the collection was exhibited at the Agricultural Fair at Washington, Miss., in July, 1842, as well as the Agricultural Fair at Natchez, and again at Washington College. Philadelphia papers contain advertisements of the City Museum, Callowhill street, below Fifth, in which the Dickeson collection constituted the Indian cabinet. An undated cutting announces a new museum known as the "Dickeson Collection of Arts and Sciences," as opened in Chestnut street, above Sixth. It is described as a private collection of curiosities, minerals and natural objects, the property of a society which will maintain it for the advantage of its members. Later this collection is advertised as open to the public for the benefit of the Cooper Shop and Union Refreshment Saloons. In the winter of 1867-68 Dr. Dickeson opened a museum in the third floor of the Swaim Building, on Seventh street, below Chestnut, but it had but a short existence. The collection at this time included many other objects, such as Chinese curiosities, which Dr. Dickeson afterward sold at auction in Philadelphia. The Indian collection was exhibited in the main building at the Centennial Exposition in 1876, afterwards in the Permanent Exhibition and then down to 1885 at Memorial Hall, Fairmount Park, when a printed catalogue was carried to stage of corrected proof sheets. Dr. Dickeson also (ca. 1852) exhibited the collection throughout the country in connection with a panorama of the Mississippi Valley, lecturing on American archæology. The panorama, painted in 1850 by John J. Egan, is now in the University Museum. It consists of a series of pictures of Indian mounds on the Mississippi and Ohio rivers, with lurid and fanciful illustrations of Indian life.

In Squier and Davis' "Ancient Monuments of the Mississippi Valley" * we read:

We are in possession of very little authentic information respecting the monuments of the Southern United States. All accounts concur in representing them as very numerous and extensive, and as characterized by a regularity unknown, or known but to a limited degree, amongst those which occur further north, on the Ohio and its tributaries, and upon the Missouri and Upper Mississippi. This extraordinary regularity, as well as their usually great dimensions, have induced many to regard them as the work not only of a different era, but of a different people. Mounds of several stages closely resembling the Mexican *Teocalli* in form and size; broad terraces of various heights; elevated passages and long avenues, are mentioned among the varieties of ancient structures which abound from Florida to Texas. The mounds are often disposed with the utmost system in respect to each other. Around some of the larger ones, others of smaller size are placed at regular intervals, and at fixed distances. Some have spiral pathways leading to their tops, and others possess graded ascents like those at Marietta.

The inability to add very largely to our stock of information respecting the monuments of the Southern United States is less a matter of regret, since it is ascertained that Dr. M. W. Dickeson, of Philadelphia, whose researches in natural science have created no little interest, has devoted much of his time to their investigation. His inquiries have been conducted on a large scale, and will serve to reflect much new light upon our antiquities. It is hoped the public will soon be put in possession of the results of his labors.

Dr. Dickeson, while residing at Natchez, examined personally a number of mounds in the vicinity of that city. Accounts of these investigations were published in the local papers, and afterwards by him in various places—as for example in his "American Numismatic Manual" (p. 36). These reports have been extensively quoted, † especially in consequence of his claim to have found human bones associated with and contemporaneous with those of the mammoth, and through his reported discovery of a fossilized human bone in the vicinity of Natchez. ‡ For many years he had in contemplation a

* p. 104.

† See Squier and Davis, p. 118, note quoting J. R. Bartlett, "Progress of Ethnology."

‡ This bone, *as innominata*, was submitted by Dickeson to the Academy of Natural Sciences, of Philadelphia, with a large number of other fossil bones, chiefly of the extinct sloth and mastodon from the same locality, Grand Bayou,

work on "American Antiquities," but it was never published, and no connected account of his collection and discoveries has appeared. The collection acquired by the University is accompanied by Dr. Dickeson's manuscript of a portion of his projected work and an early manuscript catalogue of his collection, with his description of his mound investigations. The writer has made an abstract, embodying everything of scientific interest in these reports, which appears below. The woodcuts used in the text are printed from blocks prepared by Dr. Dickeson for his book. The specimens themselves have been carefully compared and identified. Some few of them have been lost, some broken and injured, and others can no longer be definitely located. Making allowances for all these deficiencies and for the loose observations and imperfect records of the collector, there remains much worthy of more definite and exact publication than it has hitherto received.

BERNARD MOUNDS.

Adams County, Mississippi.

Explored by Dr. Dickeson, June, 1842.

On the plantation of Thomas Bernard, three miles east of Natchez and near the margin of the St. Catharine, are several mounds. They are now, after some fifty years cultivation, almost razed to the surface of the ground, with the exception of a few small ones which have been protected by a meagre growth of oak and persimmon. Our attention was first called to three basin-shaped depressions, seventeen feet in diameter and five feet deep, arranged to form a triangle. Cleansing these of their rubbish, we found a large, square, coarse-grained sandstone mortar, hollow on both sides, and later, in each of the

near Natchez, at a meeting, October, 1846, when Dr. Dickeson made a communication (see Proceedings A. N. S. P., October, 1846, p. 106-107). Dr. Leidy was present at the meeting, but there is no record of his having made any comment. The bone is now in the Academy's collection. It is not catalogued. A section of it was made for Dr. Thomas Wilson for the purpose of analysis. The specimen is figured by Dr. Leidy in the Transactions of the Wagner Free Institute of Science of Philadelphia, Vol. 2. He there states that it differs in no respect from an ordinary, average specimen of the corresponding recent bone of man, and refers to a visit made by Sir Charles Lyell to inspect the locality where it was found.

other basins, a smaller and less perfect mortar. Several small stone ornaments, four stone beads and eleven arrow heads were all we discovered in removing the detritus. This appeared to have accumulated since the desertion of the basin and was at the bottom upwards of four feet thick. A bed of clay, firm and unyielding to the hoe, varying in thickness from fifteen to twenty inches, was next encountered. Beneath this was a

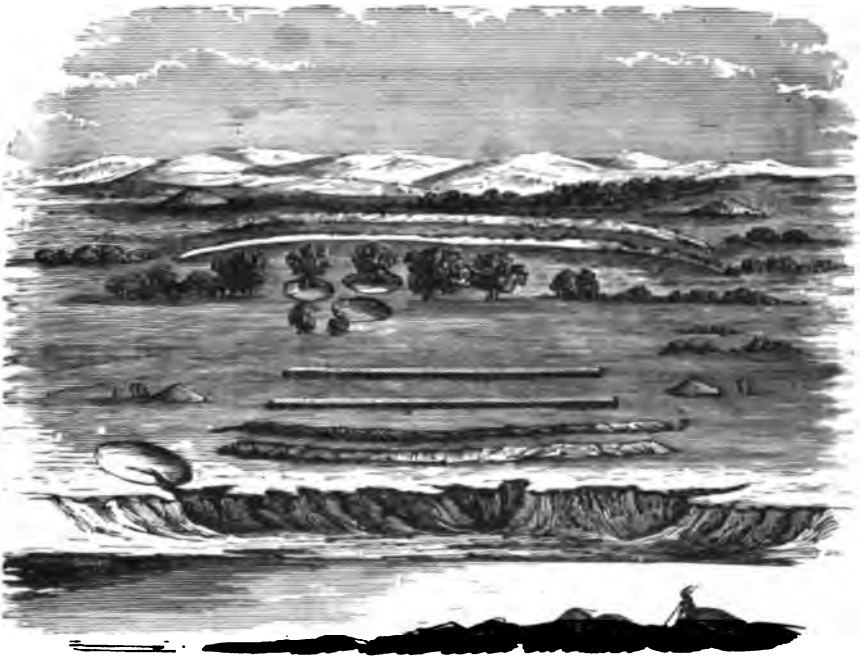


Fig. 59. Bernard's Mounds, Adams County, Mississippi.
From a drawing by Dr. M. W. Dickeson.

stratum of jasper pebbles arranged to form figures like those employed to ornament the pottery. Below the pebbles was the undisturbed soil. Similar depressions were discovered, a few months after, at Ellis' Cliffs some fifteen miles distant. They also lay close to the side of the St. Catharine and were similarly lined with clay and inlaid with pebbles. In one of them we found several curiously formed stones and a few arrow points. Fifteen feet from the group we found fragments of pottery, and, in digging, exposed a jar.

Five years prior to our visit Mr. Bernard's gardener dug up a small mound completely filled with bones in the rear of his garden and about four hundred feet from the system of structures.

We next examined the vestiges of two walls (banks) of earth, some thirty-eight yards long, lying parallel to each other, fifteen yards apart. There are two small oval mounds at either end equidistant between. Immense quantities of broken pottery, arrow and javelin points and an occasional ornament of jasper are picked up from the surface. At the eastern end of the banks we dug up two small jars filled with fine large pearls which fell into powder as soon as they became dry. There are two more banks of a crescent shape and eight feet wide and on one side are traces of a ditch six feet wide from which a portion of the material has been taken to construct the segments. West of the basin-shaped depression there seems to have been a large swale or basin, no doubt artificially constructed for a reservoir. A portion of its sides show aboriginal workmanship. A small ravine now cuts through it into the St. Catharine and has to a great extent destroyed its original form.

A great many pipes have been found in the vicinity of these structures, and a few years previous to my visit there was plowed up a large jar holding half a bushel and filled with arrow points.

QUITMAN'S MOUNDS.

Adams County, Mississippi.

Explored by Dr. Dickeson, July, 1843.

We had received an invitation from General Quitman to investigate the aboriginal structures on his plantation, situated on the margin of the Mississippi River, eight miles above the town of Natchez. It is a picturesque spot, a low level bottom of arable land extending for miles along the banks of the river. The wooded bluffs bordering on these lowlands are in many places upward of two hundred feet high and their summits are occasionally crowned with gigantic monuments of the by-gone people.

Two plows were set to work at the base of the bluffs where the negroes had reported finding bones and ornaments during

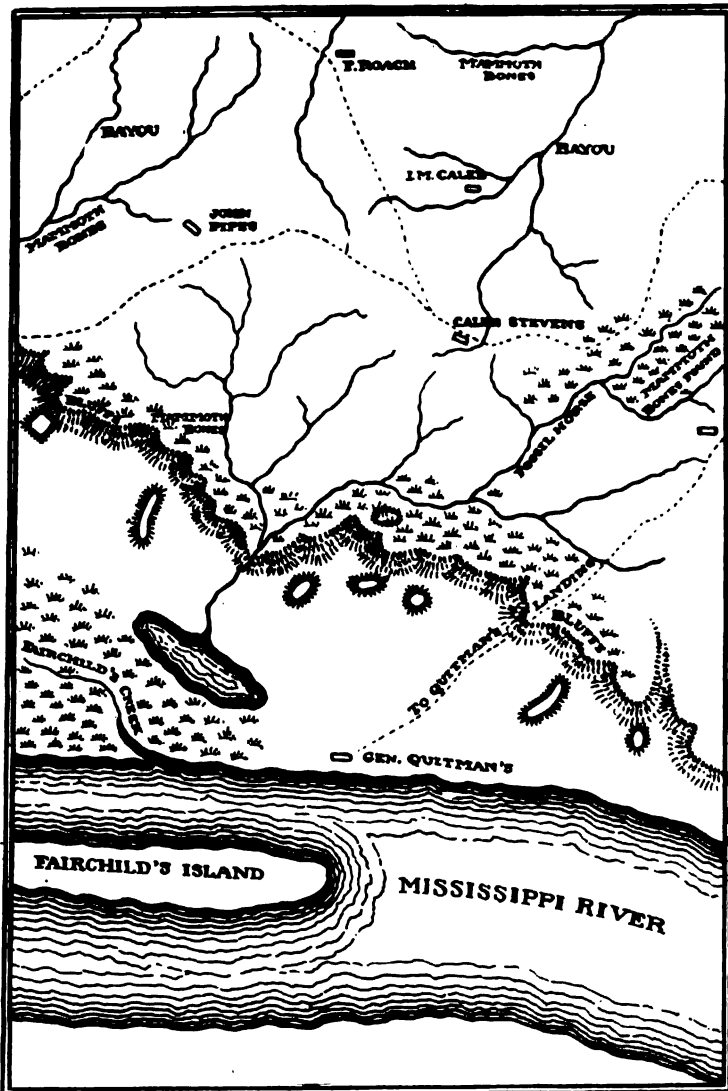


Fig. 60. Map of Quitman's Landing and Mounds, Adams County, Mississippi, 1842.
From a drawing by Dr. M. W. Dickeson.

the plowing for the crops. Examining the newly plowed ground, we discovered several circumscribed spots, varying from twenty to thirty feet in diameter, of a dark, rich loam,

much richer than the surrounding surface, completely filled with fragments of human bones, teeth and pottery. We set several of our force to digging away the soil immediately surrounding these spots or tumuli and soon exposed their original form, before entirely obliterated by the immense quantities of soil carried from the hillsides and ravines into the river bottom.

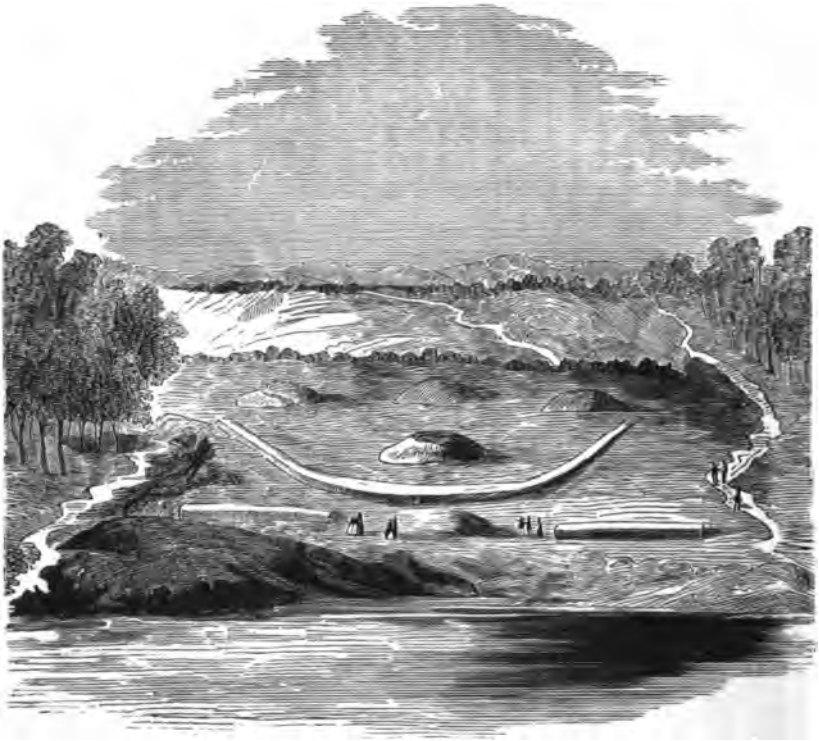


Fig. 61. Quitman's Mounds, Adams County, Mississippi.
From a drawing by Dr. M. W. Dickeson.

After sufficiently uncovering the mound, we extended a ditch two feet wide entirely through it, level with its base. The following drawing shows the section thus revealed:

Around the top and sides, entirely enveloping the mound, may be observed a dark rim of surface soil. The adjacent portion is of a light yellow color, fourteen inches thick and containing fragments of pottery, pebbles and arrow points. Noth-

ing of importance was found in this stratum save a small jar or cup filled with ashes, finely ornamented and composed of an unusually fine clay. The designs were painted with vermilion, relieved with a somewhat darker red. Among the ashes was a small scapula, two clavicles and the first and third rib of a very young child.

The next stratum was a gravelly loam, about two feet through. This we carefully removed, finding only two oval masses of conglomerate—burnt human bones mixed with ashes and coal. They lay one at each end of the mounds. These masses were broken open. In the centre of one was a small cup with edges turning over, two inches high and wrought of coarse material, unornamented. It contained a small green stone celt, pierced for suspension; also two unfinished jasper beads. At the bottom of the cup was a disk of lignite, the size



Fig. 62. Section of Mound, Quitman's.

of a quarter of a dollar. Beneath this came a stratum of dark loam, fourteen inches thick, containing seven rows of skeletons, numbering in all twenty-four, lying on their backs and heading to the east, with their hands extended along the chest. Their heads were flattened lengthwise. All the mounds in the immediate neighborhood and in the adjoining burial-places in the same bottom contained crania flattened in conical form.

Below the skeletons and capping the altar lay a stratum of coarse sand and loam, several inches thick. This we carefully examined, but found only two javelin points. Removing this mass we exposed the altar or hearth. This earthen floor once occupied nearly the entire dimensions of the mound. It had a slight depression in the centre which was filled with ashes, coals, and burnt human bones. It appears to have been constructed at three several times, in the following manner: The centre bed had been formed with its depression, and apparently

when dry, was covered with brush wood and burned hard. Around its edges had been placed another layer, which was leveled with the top of the former mass, again burned, and so on until finished. These divisions have led many hasty investigators to form erroneous conclusions and to call them brick hearths, and suggest they were the work of the early French or Spanish.

✓ FERGUSON'S MOUNDS.

Jefferson County, Mississippi.

Explored by Dr. Dickeson, 1846.

The Ferguson mounds are situated on the summit of the range of bluffs bordering on the Mississippi, some eighteen miles above the town of Natchez. The system is composed of seven conical mounds, five of them arranged to form a flattened circle, and the others a short distance above. Immediately in front of them are two large basins, the sides of which are regularly finished. In the centre of these depressions, quantities of skeletons surrounded by curious objects are dug up. Extensive roads diverge from this system of mounds all over the country, and one of them may be traced for seventy miles, passing by most of the large tumuli in the State. The first it touches is the great Seltzertown mound.

The four largest mounds stand equidistant from each other, on the summit of the bluff. The largest, fifty-six feet in height, overlooks a series of small lakes between the Mississippi and the bluffs, and commands a view of the river in both directions for many miles, as well as some eight or ten miles across into Louisiana.

We divided our force of laborers and set them at work digging into the mound from the top and sides. A short distance brought them to the skeletons, all flatheads. Our time being limited, we paid but little attention to the stratification, and simply endeavored to get as many relics as possible. In the large mound we sunk a shaft eight feet wide and fifteen feet deep. The first three feet was a rich alluvial soil, similar to that of the surrounding fields. Lower, the mound varied from the usual arrangement, being filled up with bones of inferior animals and broken pottery.

In the side of one of the small mounds we found a skeleton of gigantic size. At its head lay three finely finished vases filled with ashes and curiously wrought ornaments. In the large mound was excavated a stone pipe, Plate 12, carved to represent a flathead Indian in a sitting posture holding a bowl in its arms. East of the mounds a few miles and under the sill of

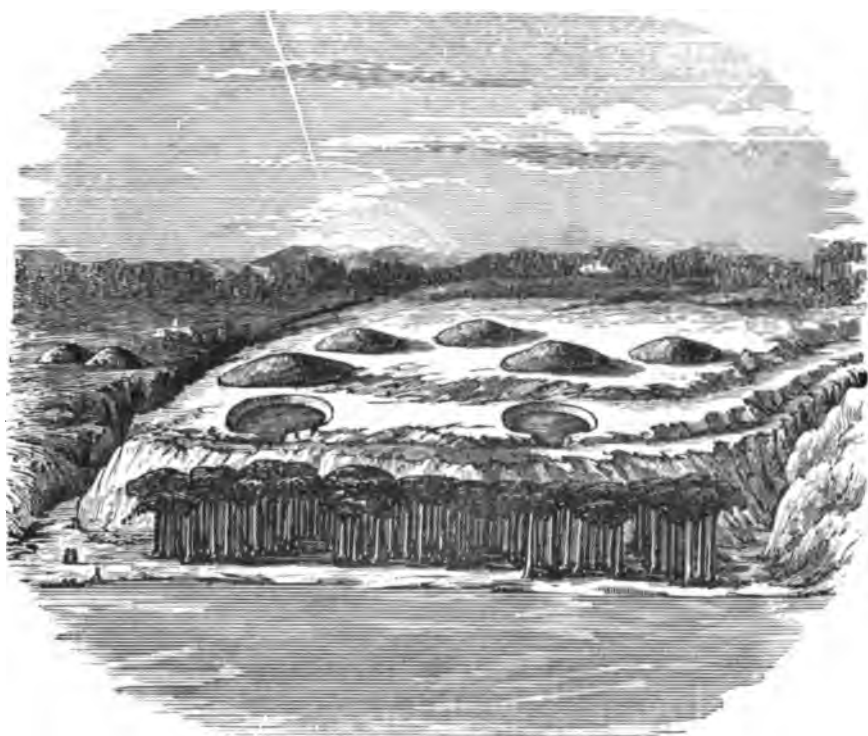


Fig. 63. Ferguson's Mounds, Jefferson County, Mississippi, 1846.
From a drawing by Dr. M. W. Dickeson.

a barn lies the bust of an Indian carved in sandstone, as large as life. It was found on the river shore in front of the three mounds. I made drawings of several finely carved pipes which were found in the mounds. Their possessors would not part with them. In former times a great number of green stone and syenite axes have been picked up in the adjacent fields, but very few have been found in the mounds themselves.

LEWIS' MOUNDS.

Adams County, Mississippi.

Explored by Dr. Dickeson, July, 1843.

The mounds on the plantation of Mr. F. Lewis are some ten miles from Natchez. Mr. Lewis, not knowing the precise locality of the aboriginal remains, summoned several of his negroes, of whom we inquired if at any time they had seen bones or ashes on the place. Their reply at first was a hesitating negative but we at last elicited that a fellow servant, some four years before had found several jars and part of a skeleton, washed out of the sides of a bayou, which he instantly destroyed, not communicating his discovery to any one until the following spring and then only in the way of cautioning his comrades not to pass the spot lest they should be haunted. The negroes on many of the plantations entertain superstitions on this head to a surprising degree. If, in their plowing, they chance upon any of the stone relics so common there, they studiously avoid touching them, believing them to have come from heaven with the thunder, whence they know them by the name of thunder-bolts. They further suppose, that, being driven into the earth, they remain there for seven years and then, ascending to the surface, are undisturbed for a like period and then descend; and they believe that if at such time, they should be caught with one about their persons, down they would go for seven years as its companion. A gentleman, residing a few miles from Natchez, sent me by one of his blacks, several Indian hatchets. The boy, seeing what they were, mounted his horse and started off as if thunder and lightning were in pursuit. He arrived in Natchez with his horse in a foam, and dismounting without a moment's delay, rushed into the office, casting the fearful objects upon the floor, apparently as much relieved as if he had escaped a seven years' confinement in the earth. Having ascertained the situation of the bayou, we dug from the margin of the ravine westwardly to a depth of three feet. We had advanced but a few feet when one of our force struck what he called a "hollow root," but which proved to be an *os femoris* of a male of gigantic size. It was so decomposed it could only be removed in pieces. We traced the remaining bones to the head which was remarkably de-

formed. The parietal and frontal bones terminated pyramidally and the occipital foramina formed an under and pointed curve nearly approaching to the cervical vertebræ, and measuring, from the orbital ridge of the frontal bone to the posterior portion of the occiput, nearly ten inches. Just above the squamous portion of the temporal bone and traversing the parietals we found an angular depression which must have been made by a corresponding elevation or something used as braces for retaining them in their proper position. Every effort was made to find the braces, but without success. In one instance we found a substance, much decomposed, resembling tortoise shell or stained horn, several inches square, lying under the skull, which was broken into small pieces in getting it out. About the head lay several pottery vases, bone and stone heads, pearl or shell ornaments and ornaments wrought from chalcedony and galena, elaborately carved. On the chest, in the angles formed by the crossing of the wrists, lay a small stone ornament, spear and arrow heads and a muller and pigments, all of which are in my collection. The pottery consisted of three pieces: a jar, basin and handled saucer. The handle of the latter was broken off. It, no doubt, was used as a lamp. The position of the skeleton in the earth was with its head to the east and slightly elevated, the hands crossing at the wrists upon the chest. The next skeleton was that of a female from twenty-five to thirty years old. On the left side of the neck lay a small cup filled with ashes. It occupied a small saucer which was broken with the hoe. On the right side of the neck was a jar, similarly filled with ashes much darker than the former. This was also broken. At this stage of the examination we found skeletons lying in rows, about eighteen inches apart occupying the same position, with heads to the east. We dug up the remains of some twenty, finding nothing of note, only securing such pieces of pottery as were entire. About five to one were broken, notwithstanding the precautions used. At one point as they advanced into the bayou the laborers lost sight of the bones. When ordered to dig deeper, the hoe suddenly stuck into a mass producing a grating noise. Digging into it we found upwards of a bushel of burnt human bones out of which we selected a number of pieces of the crania and parts of the max-

illary bones containing the teeth complete, deprived of their animal matter by fire. The next skeleton exposed, judging from the loss of teeth and the entire absorption of the alveolar processes, must have been upwards of eighty years old. The bones were short and thick, indicating the person to have been a dwarf. Around the head and neck lay several pieces of finely carved pottery, double in number met with in any other skeleton. The head was flattened and on the superior portion of the frontals at the junction with parietals, the bones had ex-foliated, leaving the margins with smooth, rounded edges, no doubt caused by long continued pressure of the head braces.

The next skeleton was that of a male. The skull was flattened and of immense size and differed much from any of the preceding. The occiput extended perpendicularly four and a half inches, meeting the other bones at a rounded point at their superior extremities. The tables of the bones were quite thin, the parietals flat, and the cavity of the head filled up with dirt. Around the neck lay three pieces of pottery, one of which was obtained whole, a bottle moulded with clay over a gourd and then burnt out; the carvings well executed.

This was succeeded by a male of large stature, with head compressed and three-fourths of an inch thick. Around the neck lay two pieces of pottery, one a bowl or saucer and the other a jar, the upper part of which formed a rude representation of a human head with open mouth. On the chest lay several implements of war, paints, mullers, etc. Several skeletons promiscuously thrown together without regard to position next attracted our attention and were no doubt the common order, from their careless burial. We examined several heads and did not find one that showed evidences of fracture from weapons. Neither was there the conformation or structure belonging to the female, nor were there more than one flathead among them. The bodies now became very numerous, so as to forbid minute examination at this time, the broken remains of thirty individuals being exposed. They lay in lines, and in pairs without the regard to sex that their position would lead one to suppose. We found as often a pair of males as a male and female. The day beginning to decline, we hurried through the examination of the bodies remaining, in every instance finding pottery about the neck, but mostly broken, as the mere

pressure of the earth had fractured many of the finest specimens. Out of about ninety specimens, thirty-two only were obtained whole. Many more might have been saved had they been left several hours exposed to the sun and allowed to harden, before they were displaced. In the earth, at the



Fig. 64. White Apple Village Mounds, Adams County, Mississippi.
From a drawing by Dr. M. W. Dickeson.

slightest touch, they crumbled into pieces. The vessels found with the females were, in most cases, upside down and empty. The number generally found with each varied from two to four. In the case of the dwarf, however, there were seven, and of more finished workmanship. This fact, with the quantity of burnt human bones found with him, seems to designate him as a personage of more than ordinary importance.

WHITE APPLE VILLAGE.

Adams County, Mississippi.

Explored by Dr. Dickeson, September, 1844.

This village of the Natchez lies three miles southeast of the White Cliffs on the plantation of James Railey. It is distinguished by a group of three mounds, the largest of which has measured 178 feet in circumference at its base. To the right of this mound are indications of other small structures. Continuous cultivation for three-fourths of a century has almost destroyed this monument, the one mound in the South the history of which can be traced from written records. This spot, now regarded only as a cotton field, was the site of the proud and princely village of the Natchez.

From all I can learn, this system of mounds has never been thoroughly investigated. They were originally of a circular figure, and the largest about twenty-five feet high.

Dr. Dickeson then states that on his visit to the mound, having no force to excavate, he merely examined the surface, which was covered with a growth of cotton, and collected such fragments as lay around the top, sides and base.

OLD FORT ROSALIE.

Adams County, Mississippi.

Visited by Dr. Dickeson.

The remains of Fort Rosalie stand on the east bank of the Mississippi River, 500 yards below the town of Natchez. This relic of our early history crowned the summit of a noble aboriginal mound, 200 feet above the level of the river. The fort was erected in 1716. In 1723, the French were massacred by the Natchez. The ancient structure has long since been swept away, and nothing remained when I visited it but an old well and portions of the rampart. There then lived above the Cliffs an old free man of color named Ellis, who informed me that both his master and himself had obtained the majority of the iron they used in their forge from this old structure and well. He described it as being chiefly wheel tires, and, to use his own language, "most excellent stuff they were." In our investigations about the ruins we found a number of spikes,

buttons, flints, spoon handles, etc., a few of which I kept. Old man Ellis had collected relics about the fort. He assured me that the fort was placed upon an aboriginal mound. Years after it had slid into the river and been washed away. Numerous fine darts, pipes, disks, etc., could be found on the shore at low water.



Fig. 65. Fort Rosalie, Adams County, Mississippi.
From a drawing by Dr. M. W. Dickeson.

✓ FERIDAY MOUNDS.

Concordia Parish, Louisiana.

Explored by Dr. Dickeson, 1843.

The Feriday mounds are situated on the plantation of William Feriday, in an angle formed by the junction of the Concordia and Black Bayou. They are eight in number, with little perceptible difference in their dimensions, except the one that faces the Concordia. This measures fifty-two feet in base line

and is eleven feet high and has seven angles. We dug a ditch entirely through it, exposing the stratification, as shown in figure 66.

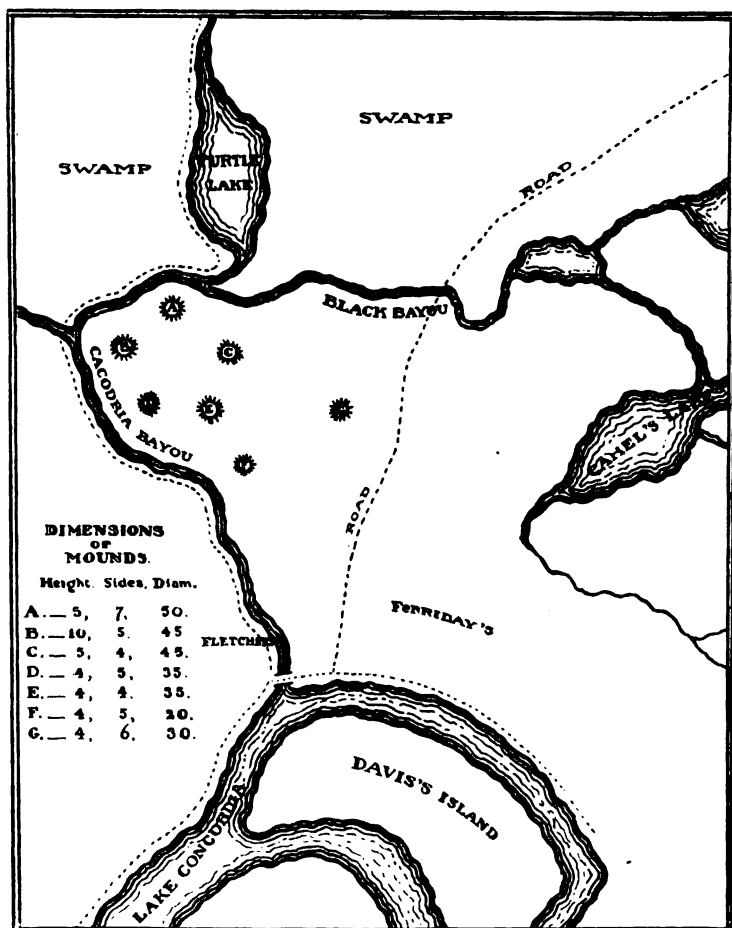


Fig. 66. Map of Feriday Mounds, Concordia Points, Louisiana.
From a drawing by Dr. M. W. Dickeson.

Commencing at the base, the first formation was a conglomerate of ashes, coals, burnt bones, and fragments of brick and pottery, two feet thick. This our force had great difficulty

in penetrating. It emitted a caustic smell, not unlike that given off by ashes when slaked. We found nothing of importance in this layer; a few arrow points of navaculite and several fragments of mica, well burned, with two fragments of clay pipes lay near the surface. Above this was a dark, rich loam filled with broken pottery of an unusually fine texture and, in part, painted. This stratum varied in thickness from eighteen inches to two feet. The next stratum, a light yellow loam, three feet through, contained the skeletons. The bones lay in small heaps and apparently in some system. The long bones of the extremities lay parallel and across each other. At one corner of these remains were the scapula and innominata; on the top of the heap and at right angles with the extremities, the ribs and small bones of the feet and hands, and the whole osseous heap was capped with the crania. The fourth stratum, fifteen inches thick, was a light sandy loam.

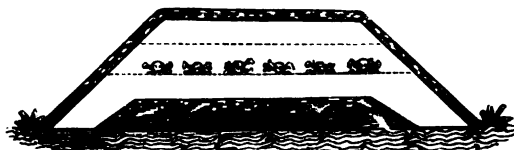


Fig. 67. Section of Mound, Feriday's Landing.

The next mound explored was five feet high, quadrangular and forty-five feet at the base. We dug a similar ditch. Below was a burnt mass of clay, forming a platform or altar. It had no depression in its centre, and was rudely formed and covered with ashes, bones, etc. Above it, in a stratum of dark loam, was a layer of skeletons with heads all flattened lengthwise. They lay in lines, similar in position to those previously described, but not regularly. Several of them had their arms and legs extended, and lumps of cement were strewn around. The bones were so decomposed it was impossible to remove them without a previous preparation to harden them. They were a very interesting series of heads, and I regretted my inability to secure them.

Among the skulls in this mound there appeared to be every variation of form, no two corresponding, yet all, with two exceptions completely round, flattened lengthwise. One was almost a rhombus and appeared as if it had been kept in a

box during its development. Another appeared trilobed, and decided depressions could be traced where the bandages had been applied. The third was very long and thin and raised at an angle of fifty degrees. This head we were all anxious to preserve and made every effort to expose, piece by piece, but as soon as it became dry, it would crack with a loud noise.

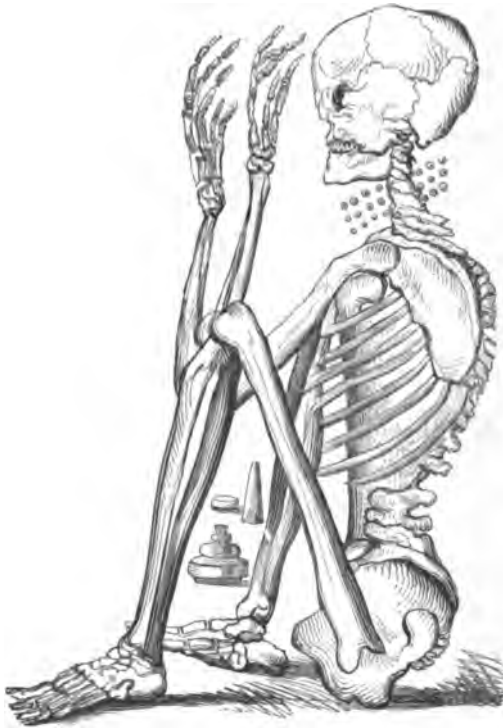


Fig. 68. Skeleton of a Choctaw Indian, Feriday's Mounds.

The fourth was taken up, dirt and all, but finally fell to pieces when it became dry. The remainder of the skeletons were traced with the spade, and the head divided into equal portions, which gave an opportunity to make correct drawings as they lay undisturbed.

The third mound we opened was four feet high and forty at its base. It contained four skeletons, irregularly placed about the surface. In the immediate centre we found a skeleton of a

Choctaw Indian in a sitting posture, with his legs drawn up against his body and his arms against his chest. Between the angles formed by the lower extremities lay a muller, paint cup, fragments of limonite, a small jar and a richly wrought hatchet. Around the neck were a number of glass beads which were distributed among our lady visitors. The jar was fragmentary and the bones much decomposed. The head did not appear to have been compressed, and the skull was unusually large. The drawing (Fig. 68) was made of its position in the earth: A short distance to the left of this skeleton lay a large mass of cement, two inches thick and studded with small white and black quartz and jasper pebbles, in no regular order except that of being even with the top of the mass.

We opened another small mound next to the Black Bayou, in which the order of the strata varied little from the last described. It contained a number of skeletons whose heads were all flattened. There were no vases around the neck, as is the case in most mounds, and but few ornaments and these rudely executed. A gentleman of Louisiana presented me with several fine relics which his negroes found while plowing in the vicinity of this group. One was a beautiful axe (celt) six inches long, of a dark green color. A large pipe, the figure of an owl of coarse-grained sandstone, five inches high, with the bowl coming out of the middle of the back, was found in the centre of a small mound but a short distance from this group. I made every effort to obtain it, but it had been taken out of the country and deposited in a private collection in Boston.*

* These narratives were published in full by Dr. Dickeson in "The Lotus," Vol. I, Philadelphia, 1848.

CATALOGUE.*

COLLECTIONS FROM MISSISSIPPI.

- 14,230. Polished celt. Length, $7\frac{1}{8}$ inches. Railey mound.
- 14,231. Polished celt. Length, $8\frac{1}{4}$ inches. Ferguson mound.
- 14,232. Polished celt. Length, $7\frac{1}{8}$ inches. Found in a small burial mound on the plantation of Colonel Bingaman.
- 14,233. Polished celt. Length, $6\frac{7}{8}$ inches. Found in a ravine where a mound had caved in. William Minor's.
- 14,234. Polished celt. Length, $4\frac{1}{2}$ inches. Chamberlain mound.
- 14,235. Polished celt. Length, 6 inches. Small mound near Great Seltzertown mound.
- 14,236. Polished celt. Length, $3\frac{1}{2}$ inches. Found in plowing a field at Mr. Railey's.
- 14,237. Polished celt. Length, $4\frac{1}{4}$ inches. Elliott's.
- 14,238. Small polished celt. Length, $3\frac{5}{8}$ inches. Mound at Ferguson's.
- 14,239. Small polished celt. Length, $3\frac{3}{8}$ inches. Elliott's.
- 14,240. Polished celt. Length, $3\frac{1}{8}$ inches. Mound at Dunbar's.
- 14,241. Polished celt. Length, 3 inches. Mound at Race Course.
- 14,242. Polished celt. Length, 3 inches. Found in a field at Roach's.
- 14,243. Polished celt. Length, $2\frac{3}{4}$ inches. Mound at Connor's.
- 14,245. Polished celt. Length, $2\frac{1}{2}$ inches. Mound at Ferguson's.
- 14,246. Polished celt. Length, $2\frac{1}{2}$ inches. Mound at William Connor's.
- 14,247. Polished celt. Length, $2\frac{1}{2}$ inches. Mound at Dr. Dunbar's.

* Specimens marked with a * bear no indications of work, and, while they may have been used by the Indians, appear to be natural stones.

- 14,248. Polished celt. Length, $1\frac{7}{8}$ inches. Mound at Dr. Mercor's.
- 14,249. Polished celt. Length, $2\frac{3}{8}$ inches. Field at Railey's.
- 14,250. Polished celt. Length, $2\frac{1}{4}$ inches. Mound at Dunlap's.
- 14,251. Polished celt. Length, $3\frac{1}{2}$ inches. Mound at Kibby's.
- 14,252. Polished celt. Length, $3\frac{1}{8}$ inches. Field at Kibby's.
- 14,260. Polished celt. Length, $1\frac{3}{4}$ inches. Natchez.
- 14,261. Polished celt. Length, $1\frac{5}{8}$ inches.
- 14,262. Polished celt. Length, $2\frac{1}{8}$ inches. Mound at Ellis' Cliffs.
- 14,263. Polished celt. Length, $2\frac{1}{8}$ inches. Found in a field at Smith's.
- 14,264. Polished celt. Length, 2 inches. Field at Bingaman's.
- 14,265. Polished celt. Length, $3\frac{1}{2}$ inches. Mound at Bingaman's.
- 14,266. Polished celt. Length, $2\frac{3}{4}$ inches. Field at McNutty's.
- 14,267. Polished celt. Length, $1\frac{3}{4}$ inches. Field at White Cliffs.
- 14,268. Polished celt. Length, $2\frac{1}{2}$ inches. Field at Caliph's.
- 14,269. Polished celt. Length, $1\frac{5}{8}$ inches. Mound at Dunlap's.
- 14,270. Polished celt. Length, $1\frac{5}{8}$ inches. Mound at Stower's.
- 14,271. Polished celt. Length, $2\frac{1}{2}$ inches. Seltzertown mound.
- 14,274. Polished celt. Length, $1\frac{1}{2}$ inches. Ferguson's mounds.
- 14,275. Celt. Length, $1\frac{3}{4}$ inches. Bingaman's mound.
- 14,276. Polished celt. Length, $1\frac{3}{4}$ inches. Quitman's mound.
- 14,277. Polished celt. Length, $8\frac{1}{2}$ inches. Jefferson County.
- 14,278. Polished celt. Length, $9\frac{1}{2}$ inches. Jefferson County.

- 14,279. Polished celt. Length, 9 inches. Found in a field while plowing, near Allen Grafton's.
- 14,280. Polished celt, narrow, with two nicks at top. Length, $4\frac{5}{8}$ inches. Mound at Ferguson's.
- 14,281. Double-pointed polished celt or chisel, flat on one side. Length, $11\frac{1}{4}$ inches. Allen Grafton's.
- 14,282. Sharpened celt. Length, 5 inches.
- 14,286. Celt, unpolished. Length, 6 inches.
- 14,288. Polished celt, jasper. Length, $2\frac{5}{8}$ inches. Field near Natchez.
- 14,289. Polished celt. Length, 2 inches. Field near Dunbar's.
- 14,290. Polished celt, jasper. Length, $1\frac{3}{4}$ inches. Field near Rosalie.
- 14,291. Polished celt, pink jasper. Length, $1\frac{3}{4}$ inches. Field near Second Creek.
- 14,292. Polished celt, jasper. Length, $2\frac{1}{2}$ inches. Field near Race Course.
- 14,293. Polished celt, jasperized wood. Length, $3\frac{1}{4}$ inches. Field near Race Course.
- 14,294. Celt, unfinished. Field near Race Course.
- 14,506. Chisel, greenstone. Length, $10\frac{1}{4}$ inches.
- 14,518. Small celt, (?) fragment. Natchez.
- 14,571. Celt, fragment. Chamberlain's.
- 14,573. Celt, fragment.
- 14,574. Celt, fragment.
- 14,575. Celt, fragment. Kibby's.
- 14,600. Celt, narrow. Length $2\frac{5}{8}$ inches.
- 14,689. Polished celt, oolite. Jackson County.
- 14,509. Slate gouge. Length, $6\frac{1}{4}$ inches. Ellis' Cliffs.
- 14,606. Grooved axe. Field near Natchez. The attribution of this unusual specimen is uncertain.
- *14,421. Pestle (?) of sandstone. Length, $10\frac{5}{8}$ inches. Found in plowing at General Quitman's. Dickeson remarks that it is the first one he had seen south of Kentucky. There are no marks of wear and it looks like a natural stone.
- *14,490. Rectangular slab of polished stone. Length, 6 inches. Race Course. Designated as a whetstone. Apparently an unworked natural stone.
- *14,495. Cubical hammer of quartzite. Kibby's mounds.



PLATE 12. Sandstone Pipe, 14,328. Ferguson Mounds, Jefferson County, Miss.



PLATE 13.

Tortoise of Serpentine, 14,715. Adams County, Mississippi.

Fragment Banner-Stone (frog). 14,344. Ferguson Mounds, Jefferson County, Mississippi.

Carved Figure of Animal, 14,716. Ferguson Mounds, Jefferson County, Miss.

- 14,497. Pebble hammer, quartz. Great Seltzertown mound.
- 14,498. Small pebble hammer. Mound on the St. Catherine.
- 14,138. Quartz pebble, oval, pointed, polished by use. Length, $1\frac{7}{8}$ inches. Bingaman's mounds.
- 14,677. Cast of stone cup known as the "Temple Vase." Natchez. (Now said to be in the possession of Judge Day, of Buffalo).
- 14,309. Sandstone pipe, massive, unornamented. Found at river's edge, among the boulders at Ellis' Cliffs.
- 14,328. Sandstone pipe. Indian seated, holding pot, which constitutes bowl. Head represented as flattened. Plate 12. Height, $5\frac{3}{8}$ inches. Ferguson group of mounds.
- 14,714. Sandstone pipe. Human figure on all-fours. River's edge below Quitman's Landing.
- 14,157. Steatite pipe, hatchet form. (Recent?) Picked up in vicinity of Chamberlain mounds.
- 14,304. Steatite pipe. Seated figure on stem. Length, $3\frac{3}{4}$ inches. Natchez.
- 14,305. Steatite pipe. Bear on stem. Length, $2\frac{1}{2}$ inches. Largest of Ferguson mounds.
- 14,306. Steatite pipe. Fragment, stem. Field at Bingaman's.
- 14,534. Fragment pipe stem. Jackson County.
- 14,308. Facsimile of sandstone pipe, rectangular, with two bowls and two orifices on stems. Human face carved in front in relief. Length, $4\frac{5}{8}$ inches. Original from small mound on Pine Ridge, Jefferson County.
- 14,327. Steatite pipe. Head of alligator gar fish. Length, 3 inches. Ferguson's mound.
- 14,715. Small carved tortoise of mottled serpentine. Plate 13. Length, $1\frac{7}{8}$ inches. Plantation of Archibald Dunbar, Adams County.
- 14,716. Carved figure of animal. Plate 13. Base is hollowed and polished. Length, $4\frac{1}{4}$ inches. From largest of the Ferguson group of mounds.
- Identified by Mr. Cushing as representing a mountain lion.
- 14,473. Amulet (?) miniature grooved axe of milky quartz. Length, $1\frac{7}{8}$ inches. Found in a small jar in Chamberlain's mound.
- 14,344. Fragment (half) of banner-stone of jasper, carved to represent frog. Plate 13. Ferguson's mounds.

- 14,345. Fragment banner-stone of jasper, resembling preceding, but plain.
- 14,648. Flat oval clay stone ornament, 5 inches in length. Ellis' Cliffs.
- 14,651. Double-pointed polished stone (cigar shaped). Length, $3\frac{1}{2}$ inches. Mound near Washington.
- 14,115. Plummets, with groove at top. Length, $2\frac{1}{2}$ inches, Seltzertown mound.
- 14,310. Plummets, with groove at top. Length, 3 inches. Burial mound near Child's Creek, a little below the great Stower's mound, Adams County.
- 14,311. Plummets, polished jasper. Length, 3 inches. Near Elliott's mounds.
- 14,312. Plummets, groove at top. Length, $2\frac{1}{2}$ inches, Washington.
- 14,313. Plummets, with groove at top. Length, $2\frac{1}{2}$ inches. Seltzertown mound.
- 14,314. Plummets, polished hematite. Race Course, near Natchez.
- 14,317. Plummets, with groove at top. Length, $1\frac{1}{2}$ inches. Near base of Gualtney mound.
- 14,523. Plummets, hematite. Vicksburg.
- 14,524. Plummets, with groove at top. Length, $1\frac{1}{2}$ inches. Lewis' mounds.
- 14,362. Oval pendant (gorget) single perforation. Chamberlain mound.
- 14,363. Green slate pendant (gorget) with single perforation. Seltzertown mound.
- 14,364. Flat oval pendant or gorget, with single perforation. Length, $3\frac{1}{4}$ inches. Fort Rosalie.
- 14,365. Facsimile of gorget. Three perforations with concentric rings. Length, $3\frac{1}{4}$ inches. Bingaman's mound.
- 14,367. Flat oval gorget, with two perforations. Broken. Original length, $3\frac{1}{2}$ inches. Washington.
- 14,475. Flat pendant, with perforation. Length, $2\frac{1}{4}$ inches. Lewis'.
- 14,482. Pendant, rectangular, with transverse hole. Highly polished brown stone. Seltzertown mound.
- 14,483. Pendant. Miniature celt with transverse perforation. Gillespie's.

14,518. Pendant, flat with one perforation, fragment. Washington.

14,520. Slate ornament, fragment with perforation. Connor's.

14,474. Small rectangular block of red limestone wrought in a form resembling a bound book. Length, 2 inches. Found in small jug in the Seltzertown mound.

14,373. Discoidal stone (Chunke stone) of highly polished quartz, stained yellow. Deep circular cavity on both sides, with small inner ring. Diameter, $5\frac{1}{2}$ inches. Largest of the Chamberlain group of mounds above Natchez.

14,373. Discoidal stone (Chunke stone). Highly polished, sides convex. Diameter, $6\frac{1}{2}$ inches; $2\frac{3}{4}$ inches thick. White Apple Village.

14,375. Discoidal stone. Diameter, $2\frac{1}{4}$ inches. Vicinity of Mrs. Posthwait's.

14,376. Discoidal stone, slightly pitted on both faces. Diameter, $2\frac{1}{2}$ inches. Plowed up on McKibby's plantation near Natchez.

14,377. Discoidal stone with concave faces. Diameter, $2\frac{5}{8}$ inches. Found near the neck of a skeleton from a burial place on the plantation of Mr. Lewis.

14,378. Discoidal stone of granular sandstone, somewhat irregular. Diameter, 2 inches. Found near the neck of a skeleton at the Race Course, Natchez.

14,379. Discoidal stone, faces concave. Diameter, $2\frac{5}{8}$ inches. Temple mound at Mr. Connor's, Second Creek, near Natchez.

14,380. Discoidal stone with convex faces. Diameter, $2\frac{3}{4}$ inches. Plantation of Colonel Adam Bingaman near Natchez.

14,381. Discoidal stone of quartz. Diameter, $2\frac{7}{8}$ inches. Plantation of Allen Grafton, ten miles above Natchez.

*14,755. † Disk of lignite; diameter, $1\frac{1}{8}$ inches, and disk of black stone (flat pebble); diameter, $1\frac{1}{8}$ inches.

*14,818. Fragment. Lignite. From mound. Adams County.

14,476. Stone bead, perforated. Near Bingaman's mounds.

† The disk of lignite is figured as an aboriginal coin in Dickeson's "American Numismatic Manual," Plate I, 17. The bird there represented is not on the original.

14,477. Stone bead, limonite. Length, $2\frac{1}{2}$ inches. Ellis mound.

14,478. Stone bead. Rudimentary perforations. Length, $2\frac{1}{2}$ inches. Ellis' mound.

14,479. Bead-shaped cylinder, finely wrought. Length, $5\frac{1}{8}$ inches. One end perforated to depth of $\frac{3}{4}$ inch. Ferguson mound.

14,480. Bead of red jasper. Length, $2\frac{1}{2}$ inches. Rudimentary perforations.

14,481. Stone bead, imperforate. Near Natchez.

14,791 *a*. Stone bead. Perforation just started. Ellis'.

14,426. Copper bead. Mound at Connor's.

14,427. Copper bead plated with silver. Found in a small jar at mound at Fort Rosalie. There were ten beads of copper, three of which were thus plated. The bones found with it had been cremated.

14,428. Pearl, perforated. Diameter, $\frac{1}{2}$ inch. One of thirty found in a small jar dug from a mound on the plantation of Thomas Kibby, Jefferson County. They were worn for some time as beads by a female servant at the quarters.

14,429. Pearl, perforated. Similar to above. Jefferson County.

* 14,766. Mass of native copper. Unworked.

14,460. Bead of galena. Flat on one side. Perforated.

14,368. Lava pebble. Perforated. Mound in Jefferson County.

14,597. Fragment lava, with incised cross marks as if used as rubbing stone. Mound at Washington.

14,113. Notched pebble. Chamberlain's.

* 14,139. Jasper pebble, drop-shaped. Length, $1\frac{3}{4}$ inches. Dunbar's.

* 14,521. Perforated pebble. (Section of geode). Seltzer-town mound.

* 14,590. Perforated boulder. Adams County.

14,389. Stone hammer, discoidal. Diameter, 4 inches. Vicksburg.

* 14,125. Pebble, basalt (?) with conical projecting points. Shows no signs of work. Field near Bingaman's mounds.

14,350. Oval polishing stone of polished quartz, flat on one side. Gillespie's mounds.

- 14,352. Polishing stone, jasper pebble. Posthlewait's mound.
- 14,353. Polishing stone, jasper pebble. Stower's mound.
- 14,354. Polishing stone, jasper pebble. Washington.
- 14,355. Polishing stone, jasper pebble. Field near Natchez.
- 14,356. Polishing stone, jasper pebble.
- 14,357. Jasper pebble, dish-shaped. Allan Grafton's mound.
- 14,358. Polishing stone, jasper pebble. Kibby's mound.
- 14,359. Polishing stone, jasper pebble, worn smooth by use. Railey's mound.
- 14,360. Polishing stone, jasper pebble. Fort Rosalie.
- 14,361. Polishing stone, jasper pebble. Chamberlain's mound.
- 14,646. Polishing stone, jasper pebble.
All of the above, from 14,352, show high polish.
- 14,831. Polishing stone, jasper pebble.
- 14,510. Polishing stone of sandstone, oval, $3\frac{1}{2}$ inches in greatest diameter. Worked to edge at both ends. Burial mound near Seltzertown.
- 14,757. Jasper nodule, partly worked.
- 14,767. Grooved rubbing stone. Near Natchez.
- 14,664 *a*. Agate pebble, banded. Small mound at Bingaman's.
- 14,664 *b*. Agate pebble, banded. Found on the bastion rampart at Ferguson's.
- 14,664 *c*. Agate pebble. Summit of Seltzertown mound.
- 14,664 *d*. Agate pebble. Small mound at Bingaman's.
- 14,665 *a*. Agate pebble, banded. Summit of Seltzertown mound.
- 14,665 *b*. Agate pebble. Found near the summit of Seltzertown mound.
- *14,665 *c*. Agate pebble. Small mound at Chamberlain's.
- *14,666 *a*. Agate pebble. Small mound at Kibby's.
- *14,666 *b*. Agate pebble. Small mound at Dunbar's.
- *14,666 *c*. Agate pebble. Small mound at Kibby's.
- *14,666 *d*. Agate pebble. Small mound at Elliott's.
- 14,750. Jasper nodule. Roach's mound.
- 14,756. Jasper pebble hammer. Natchez.
- 14,758. Jasper pebble. Ferguson's.

- 14,764 *b*. Agate pebble. Small mound at Ferguson's.
*14,764 *a*. Agate pebble. Chamberlain's mound.
14,782. Jasper pebble. Shows flaking. Natchez.
*14,846. Jasper pebble. Rosalie.
*14,847. Jasper pebble. Roach's mound.
*14,848. Jasper pebble. Kibby's mound.
*14,667 *a*. Limestone concretions (2). Race Course.
14,347. Paint cup, trough-shaped. Length, $3\frac{1}{4}$ inches.
Said to have contained a dark brown paint. Ferguson's mound.
14,348. Paint cup, trough-shaped. Length, $2\frac{3}{4}$ inches.
Bingaman's mounds.
14,349. Fragment trough-shaped paint cup. Connor's.
14,350. Paint stone, boat-shaped, mottled quartz. Length, $2\frac{3}{8}$ inches. Gillespie's mounds.
14,511. Hematite paint-stone, oblong. Length, $2\frac{5}{8}$ inches.
Connor's.
14,512. Hematite paint-stone, rectangular. Length, $2\frac{1}{2}$ inches. Chamberlain's mound.
14,514. Hematite paint-stone, oblong, fragment. Gillespie's mound.
14,515. Hematite paint-stone, cylindrical. Length, $1\frac{3}{4}$ inches. Railey's mound.
14,516. Hematite paint-stone, square prism. Length, $1\frac{5}{8}$ inches. Ferguson's mound.
14,517. Hematite paint-stone, oval. Length, $2\frac{3}{4}$ inches.
*†14,351. Pebble cup of limonite, boat shaped. Interior polished. Length, $2\frac{5}{8}$ inches. Williams' mound.
*14,370-71. Mortar and pestle for paint, of limonite pebbles. Found half filled with paint, with a skeleton. Seltzertown mound.
*14,388. Limonite pebble cup. Connor's mound.
*14,391. Limonite pebble, cup-shaped. Postlethwaite's mound.
*14,392. Limonite pebble, cup-shaped. Railey's mound.
*14,393. Limonite pebble, cup-shaped. Fort Rosalie.
*14,395. Limonite pebble. Ellis'.

† Dickeson remarks that limonite shells are found plentifully in the diluvial formation of the bluffs of the Mississippi.

*14,396. Limonite pebble cup, oblong. Length, $6\frac{5}{8}$ inches. Ellis' Cliffs.

*14,399. Limonite pebble cup. Connor's mound.

*14,400. Limonite pebble cup. Seltzertown mound.

*14,401. Limonite pebble cup, natural surface. From mound.

*14,402. Limonite pebble box. Nearly square pebble, containing white powder. Large Chamberlain's mound.

*14,403. Limonite pebble, broken. Ferguson's mound.

*14,404 a. Limonite pebble, oblong. From mound.

*14,404 b. Limonite pebble, oblong. Length, $6\frac{1}{2}$ inches.

Rattles when shaken.

*14,405. Limonite pebble. Rattles. Vicksburg.

*14,406. Limonite pebble, cup-shaped. Ferguson's.

*14,407. Limonite pebble cup. Dunbar's mound.

*14,408. Limonite pebble. Race Course, Natchez.

*14,409. Limonite pebble, cup-shaped. Bingaman's mound.

*14,410. Limonite pebble cup. Large Chamberlain's mound.

*14,411. Limonite pebble cup. Kibby's mound.

*14,412. Limonite pebble, broken. Altar-hearth of William Connor's.

*14,413. Limonite pebble rings (3). From mounds.

*14,414 a. Limonite pebble. Found on the altar-hearth of Connor's mound.

*14,414 b. Limonite pebble, irregular form. Rattles. Race Course.

*14,415. Limonite pebble, cup-shaped. Found on altar-hearth of Connor's mound.

*14,416. Limonite pebble. Mound at Race Course.

*14,418. Limonite pebble, cup-shaped fragment. From mound.

*14,419. Limonite pebbles (2), oblong. From mounds.

*14,420. Limonite pebble, long and flat, broken. From mound.

*14,594. Limonite pebble cup. Roach's mound.

*14,843. Limonite pebbles (2). From mounds.

*14,844. Limonite pebble. From mound.

*14,845. Limonite pebble. Quitman's mound.

*14,849. Limonite pebble. From mound.

*14,792 *a*. Paint stone, white (chalk). Small mound near Rodney.

14,815. Clay stones (8), finger-shaped, appear to have been worked.

14,557. Jasper blade. Length, $4\frac{1}{4}$ inches. Found in a jug at Lewis' mound.

14,558 *a*. Jasper blade. Length, $3\frac{1}{2}$ inches. Ferguson's mound.

14,558 *b*. Jasper blade. Length, $3\frac{3}{4}$ inches. Field at Minor's.

14,559. Jasper blade. Length, $3\frac{3}{4}$ inches. Bingaman's.

14,560 *a*. Jasper blade. Length, 4 inches. Field at Fairchild's Creek.

14,560 *b*. Flint blade. Length, 4 inches. Fairchild's Creek.

14,561. Jasper blade. Length, 4 inches. Field at Flower's.

14,562 *a*. Chipped blade. Length, 3 inches. Ravine at Chamberlain's.

14,562 *b*. Jasper blade. Length, 3 inches. Ravine at Chamberlain's.

14,563. Jasper blade. Length, 4 inches. Minor's.

14,564 *a*. Jasper blade, very broad. Length, $5\frac{1}{4}$ inches. Great Seltzertown mound.

14,564 *b*. Jasper blade. Length, 3 inches. Ravine at Chamberlain's.

14,565 *a*. Jasper blade. Length, $5\frac{1}{8}$ inches. Allen Grafton's.

14,565 *b*. Jasper blade. Length, $4\frac{3}{8}$ inches. Grafton's.

14,565 *c*. Novaculite blade. Length, $5\frac{1}{8}$ inches. Field at Ferguson's.

14,566. Quartzite blade, rude, notched. Length, $5\frac{1}{2}$ inches. Quitman's.

14,567. Jasper blade. Length, $4\frac{5}{8}$ inches. Bailey's.

14,568. Jasper blade. Length, $5\frac{1}{8}$ inches. Elliott's.

14,569 *a*. Slate blade. Length, $5\frac{3}{4}$ inches. Near Kibby mounds.

14,569 *b*. Jasper blade. Length, $4\frac{1}{4}$ inches. Mound at Kibby's.

14,701. Flint turtle-backs (5), about 3 inches in diameter. Part of a deposit of about 200. Elliott's mounds.

- 14,702. Flint turtle-backs (8), same as preceding. Small mound above Elliott's, at Mr. Kibby's.
- 14,703. Flint turtle-back.
- 14,704. Jasper disk. Bingaman's.
- 14,707 *a*. Jasper disk, small. Ellis' Cliffs.
- 14,707 *b*. Jasper disk, small. Fort Rosalie.
- 14,708 *b*. Jasper disk. Roach's mound.
- 14,709 *a*. Jasper disk. Gillespie's mound.
- 14,709 *b*. Jasper disk. Surzett's mound.
- 14,717. Scraper, with serrated edge and very irregular form. Railey's mound.
- 14,718. Jasper scraper or lancet with serrated edge and very irregular form. Ferguson's mound. Dickeson states that a similar splinter of jasper was used at the time he wrote, by the Choctaw, as a lancet for opening a vein in blood-letting. It was submitted to a petty chief at Natchez, who pronounced it a lancet, and seemed very desirous to obtain it.
- 14,719. Chipped blade. Length, $10\frac{1}{2}$ inches. With skeleton on the basin ramparts in front of the largest mound of the Ferguson system.
- 14,721 *a*. Flint blade. Length, $3\frac{3}{8}$ inches. Grafton's.
- 14,721 *b*. Novaculite blade. Length, $3\frac{1}{4}$ inches. Grafton's.
- 14,722 *a*. Novaculite blade. Length, $3\frac{1}{2}$ inches. Kibby's mound.
- 14,722 *b*. Novaculite blade. Length, $3\frac{1}{2}$ inches. Ferguson mounds.
- 14,722 *c*. Novaculite blade. Length, $4\frac{1}{8}$ inches. Chamberlain mounds.
- 14,723 *a*. Jasper blade, curved. Length, $3\frac{3}{4}$ inches. Connor's.
- 14,723 *b*. Jasper blade, curved. Length, $3\frac{3}{8}$ inches. Field at Chamberlain's.
- 14,723 *c*. Jasper blade, curved. Length, $3\frac{3}{4}$ inches. Field at Gaultney's.
- 14,723 *d*. Jasper blade, curved. Length, $3\frac{1}{8}$ inches. Mound at Chamberlain's.
- 14,723 *e*. Jasper blade. Length, 3 inches. Ravine at Chamberlain's.
- 14,723 *f*. Jasper blade. Length, 3 inches. Elliott's.
- 14,723 *g*. Jasper blade. Length, $3\frac{1}{2}$ inches. Stower's mound.

- 14,723 *i*. Jasper blade. Length, $3\frac{1}{8}$ inches. Grafton's.
14,724 *a*. Flint blade. Length, $4\frac{1}{2}$ inches. Rosalie.
14,724 *b*. Jasper blade. Length, $4\frac{1}{2}$ inches. Connor's.
14,726 *a*. Jasper blade. Length, $3\frac{1}{2}$ inches. Bingaman's.
14,727 *a*. Jasper blade. Length, $3\frac{1}{2}$ inches. Grafton's.
14,727 *c*. Novaculite blade. Length, $2\frac{7}{8}$ inches. Chamberlain's.
14,728 *a*. Jasper blade. Length, 3 inches. Ravine at Chamberlain's.
14,728 *b*. Jasper blade. Length, $4\frac{1}{8}$ inches. Ferguson mounds.
14,728 *c*. Jasper blade. Length, $4\frac{1}{4}$ inches. Chamberlain mounds.
14,730 *a*. Jasper blade. Length, $3\frac{1}{2}$ inches. Race Course.
14,730 *e*. Flint blade. Length, $3\frac{1}{4}$ inches. Lewis'.
14,730 *f*. Jasper blade. Length, $1\frac{5}{8}$ inches. Rosalie.
15,730 *g*. Jasper blade. Length, $2\frac{3}{4}$ inches. Ferguson's.
14,731 *c*. Jasper blade. Length, $2\frac{1}{2}$ inches. Seltzertown.
14,731 *d*. Jasper blade. Length, $2\frac{1}{2}$ inches. Connor's.
14,731 *f*. Jasper blade. Length, $2\frac{1}{4}$ inches. Ferguson's.
14,733 *a*. Novaculite blade. Length, 3 inches. Roach's.
14,733 *b*. Novaculite blade. Length, 2 inches. Connor's.
14,733 *c*. Novaculite blade. Length, 2 inches. Grafton's.
14,733 *d*. Novaculite blade. Length, 2 inches. Grafton's.
14,733 *e*. Novaculite blade. Length, $2\frac{3}{4}$ inches. Roach's.
14,733 *f*. Novaculite blade. Length, 2 inches. Rosalie.
14,733 *g*. Novaculite blade. Length, $2\frac{3}{8}$ inches. Ellis' Cliffs.
14,733 *h*. Novaculite blade. Length, 2 inches. Grafton's.
14,733 *i*. Novaculite blade. Length, 3 inches. Ellis' Cliffs.
14,733 *k*. Novaculite blade. Length, 3 inches. Seltzertown.
14,733 *l*. Jasper blade. Length, $2\frac{7}{8}$ inches.
14,733 *m*. Novaculite blade. Seltzertown mound.
14,734 *a*. Black jasper blade, double-notched. Length, $2\frac{1}{2}$ inches. Ferguson mounds.
14,734 *b*. Black jasper blade, double-notched. Length, $2\frac{1}{2}$ inches. Kibby's.
14,734 *c*. Yellow jasper blade, double-notched. Length, $2\frac{3}{8}$ inches. Chamberlain's mound.

- 14,734 *d.* Yellow jasper blade, double-notched. Length, $2\frac{3}{8}$ inches. Chamberlain's mound.
- 14,734 *e.* Yellow jasper blade, double-notched. Length, $2\frac{7}{8}$ inches. St. Catherine.
- 14,734 *f.* Flint blade, double-notched. Length, $1\frac{5}{8}$ inches. Natchez.
- 14,735 *a.* Jasper blade. Length, $2\frac{1}{2}$ inches. Elliott's.
- 14,735 *b.* Jasper blade. Length, $2\frac{1}{2}$ inches. Elliott's.
- 14,735 *c.* Jasper blade. Length, $2\frac{1}{4}$ inches. Elliott's.
- 14,735 *d.* Jasper blade. Length, $2\frac{1}{4}$ inches. Roach's.
- 14,735 *g.* Jasper blade. Buckner's.
- 14,735 *h.* Jasper blade. Chamberlain's.
- 14,735 *i.* Jasper blade. Minor's.
- 14,735 *l.* Jasper blade. Inges'.
- 14,735 *m.* Jasper blade. Dunbar's.
- 14,735 *n.* Jasper blade. Rosalie.
- 14,735 *o.* Jasper blade. Roach's.
- 14,735 *r.* Jasper blade. Quitman's.
- 14,735 *t.* Jasper blade. Waile's.
- 14,736 *a.* Chert blade. Length, $2\frac{5}{8}$ inches. Ferguson's.
- 14,737 *a.* Jasper blade. Length, $2\frac{7}{8}$ inches. Grafton's.
- 14,737 *b.* Jasper blade. Length, $2\frac{5}{8}$ inches. Grafton's.
- 14,737 *c.* Jasper blade. Length, $3\frac{1}{4}$ inches. Field at Roach's.
- 14,737 *d.* Jasper blade. Length, $3\frac{1}{4}$ inches. Grafton's.
- 14,737 *f.* Jasper blade. Length, $2\frac{1}{4}$ inches. Race Course.
- 14,737 *h.* Jasper blade. Length, $3\frac{1}{8}$ inches. Bingaman's.
- 14,737 *i.* Jasper blade. Length, $3\frac{3}{8}$ inches. Gillespie's.
- 14,738 *a.* Jasper fleshing implements (18), mostly polished by use. Length, 2 to 3 inches, and much thicker than ordinary blades.
- 14,739 *a.* Jasper fleshing implements (13), in part polished by use.
- 14,739 *b.* Jasper rejects and unfinished implements like above (6).
- 14,741 *a.* Jasper blade, scraper. Fort Rosalie.
- 14,741 *b.* Jasper blade, scraper. Railey's mound.
- 14,741 *c.* Jasper blade, scraper. Colonel Bingaman's.
- 14,741 *f.* Jasper blade, scraper. Dunbar's.
- 14,741 *l, m.* Jasper knives (2). Gillespie's.

- 14,741 *n.* Jasper scraper. Ferguson's.
- 14,741 *o.* Jasper scraper. Railey's.
- 14,741 *p.* Jasper scraper. Kibby's mound.
- 14,742 *a.* Jasper drill. Length, $1\frac{7}{8}$ inches. Fort Rosalie.
- 14,743 *a.* Jasper drill. Length, $3\frac{1}{8}$ inches. Lewis'.
- 14,743 *b.* Jasper drill. Length, $2\frac{1}{2}$ inches. Lewis'.
- 14,743 *c.* Jasper drill. Length, $2\frac{1}{4}$ inches. William Minor's.

- 14,807 *b.* Jasper scraper. Fort Rosalie.
- 14,809 *a.* Jasper scraper. Chamberlain's mounds.
- 14,809 *b.* Jasper scraper. Grafton's.
- 14,809½ *d.* Jasper blade. Length, $2\frac{3}{4}$ inches. Elliott's.
- 14,809½ *f.* Jasper blade. Railey's.
- 14,811 *a.* Jasper disk (turtle-back). Bingaman's mounds.
- 14,812 *a.* Jasper fleshing implements (5), in part polished by use. Length, $2\frac{3}{8}$ to $3\frac{1}{4}$ inches. Thicker than ordinary blades.

14,812 *b.* Jasper disk (turtle-back). Diameter, $1\frac{7}{8}$ inches.

14,322. Stone disk, probably ear-plug. Diameter, $1\frac{1}{8}$ inches. Seltzertown mound.

712
14. 14,094. Terra-cotta cup, plain. Diameter at top, 3 inches. Found at Great Seltzertown mound, filled with light-colored ashes and a few bone beads, much decomposed. The skeleton was merely a white outline, entirely decomposed.

14,098. Jar with incised design. Mound on the Yazoo, on the plantation of Bergamon Roach.

14,161. Bowl with incised scroll decoration. Had two handles or projections (now broken) on opposite sides of rim. Diameter at top, 5 inches. Great Stower's mound.

14,162. Bowl with incised scroll decoration, rim incurved. Diameter at top, $5\frac{3}{4}$ inches. Mound at Kibby's.

14,163. Bowl with incised scroll decoration, painted red. Diameter at top, $5\frac{1}{8}$ inches. Burial mound at Allen Grafton's.

14,164. Bowl with incised scroll decoration. Diameter, $5\frac{1}{2}$ inches. Mound in Jefferson County.

14,165. Bowl with shoulder. Diameter, $5\frac{1}{2}$ inches. Mound at Elliott's.

14,166. Bowl, incised design. Diameter at top, 5 inches. Mound at Ferguson's.

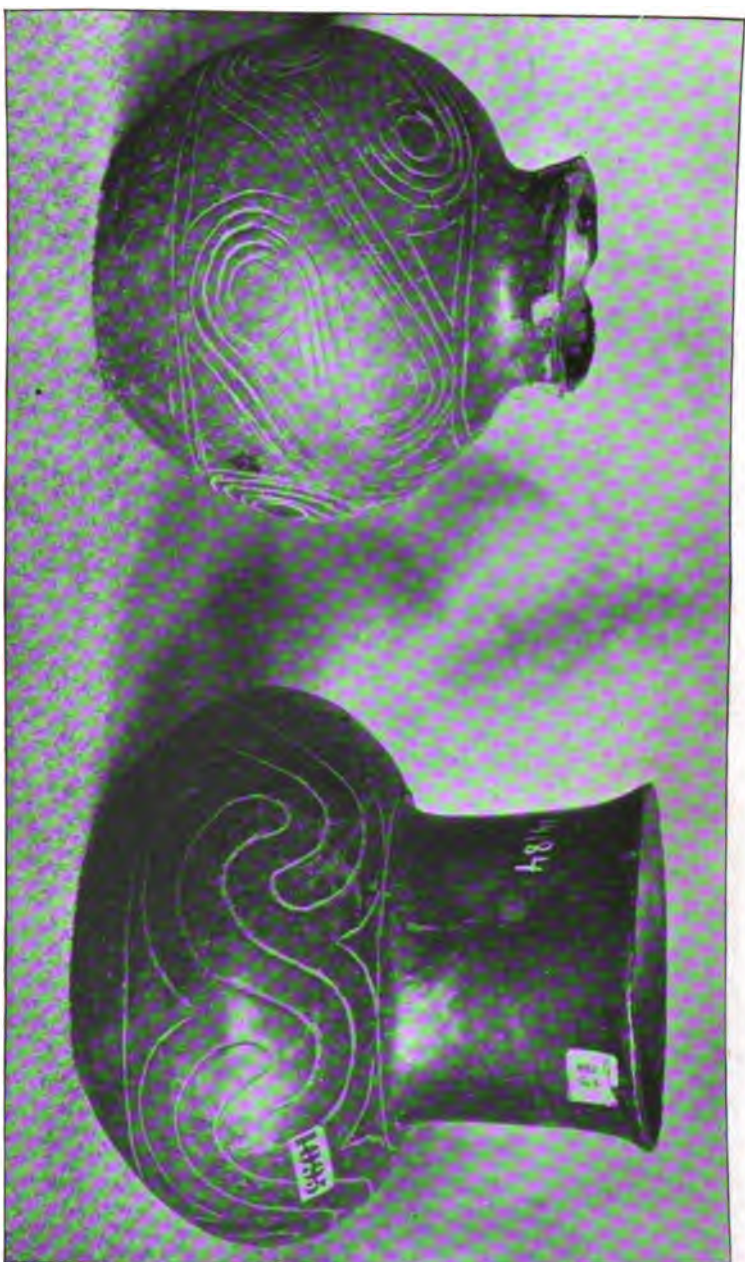
14,167. Bowl with shoulder, decorated with incised lines in



Terra-cotta jar. Height, $4\frac{3}{4}$ inches.
Morehouse Parish, Louisiana.

PLATE 14.

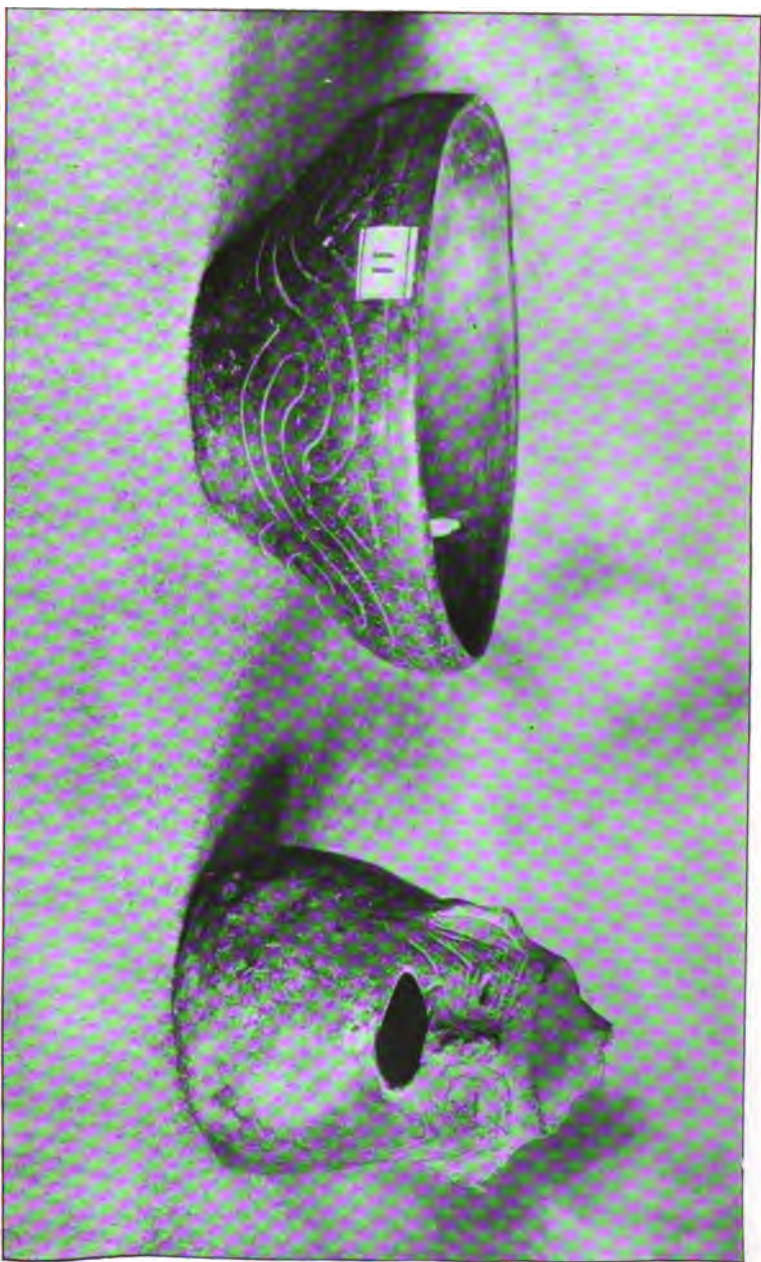
Terra-cotta jar. Height, 4 inches. 14.177.
Lewis' Mounds, Adams County, Mississippi.



Terra-cotta jar. Height, $4\frac{1}{4}$ inches. 14,179.
Morehouse Parish, Louisiana.

PLATE 15.

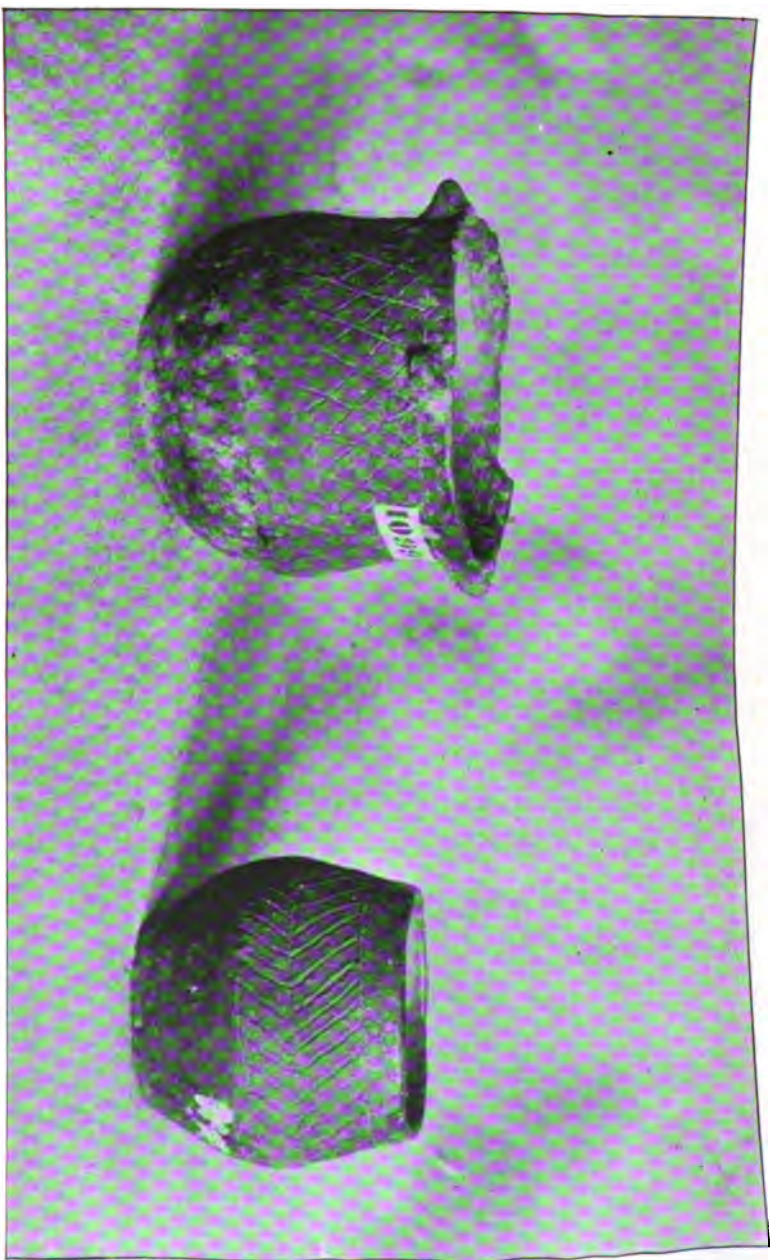
Terra-cotta jar. Height, 6 inches. 14,184.
Jefferson County, Mississippi.



Terra-cotta bowl. Diameter, 6 inches. 14,201.
Lewis' Mounds, Adams County, Mississippi.

PLATE 16.

Vase. Height, 4 inches.
Bingaman's Mounds, Mississippi.



Terra-cotta jar. Height, $3\frac{1}{2}$ inches. 14,187.
Chamberlain's Mounds, Mississippi.

PLATE 17.

Terra-cotta jar. Height, $2\frac{1}{2}$ inches. 14,205.
Race Course, Natchez, Mississippi.

chevron pattern. Diameter at mouth, $5\frac{1}{2}$ inches. Mound at Railey's.

14,168. Bowl with incised ornament. Diameter at mouth, $5\frac{1}{2}$ inches. Small mound on the Dunbar plantation.

14,169. Bowl with incised decoration. Diameter at top, $5\frac{1}{2}$ inches. Mound at Colonel Adam Bingaman's.

14,170. Bowl, plain surface. Diameter at top, 5 inches. Mound at Mrs. Posthlewait's.

14,171. Bowl, plain. Diameter, $4\frac{1}{2}$ inches. Found with a skeleton, and containing a few stone ornaments, upon the altar in one of the Chamberlain mounds.

14,172. Bowl, with shoulder, plain. Diameter at top, $5\frac{3}{8}$ inches.

14,173. Bowl, with shoulder, incised line decoration. Diameter at top, $4\frac{3}{4}$ inches. Mound at F. Lewis'.

14,174. Bowl, shallow, with incised scroll decoration and incurved rim. Diameter, $5\frac{1}{2}$ inches. Found with skeleton on plantation of F. Lewis, Washington.

14,175. Bowl with shoulder, incised decoration; also decorated inside with festoon pattern. The only specimen thus marked. Diameter, $7\frac{1}{4}$ inches. Found with skeleton on plantation of F. Lewis.

14,176. Jar, globular, with rim and incised scroll decoration. Height, $4\frac{1}{2}$ inches. Found with skeleton on plantation of F. Lewis.

14,177. Plate 14. Jar, globular, with rim, high finish and incised scroll decoration. Height, 4 inches. Found with skeleton on plantation of F. Lewis.

14,178. Jar with incised scroll designs. Height, 4 inches. Large mound at Mrs. Ferguson's.

14,181. Jar with rim and globular body, with incised scroll decoration. Diameter at mouth, $3\frac{1}{2}$ inches. White Apple Village, Second Creek, Adams County.

14,183. Jar, globular, without ornament. Found in Great Seltzertown mound, filled with light colored ashes and a few beads; much decomposed.

14,184. Jar with bulbous body and tall neck, finely polished and decorated with incised scroll design. Plate 15. Height, 6 inches. Jefferson County.

14,186. Jar, nearly globular, with rim, decorated with incised lines. Height, 5 inches. Quitman's mound.

14,187. Jar, with four knobs on rim, and cross-line decoration. Plate 17. Height, $3\frac{1}{4}$ inches. Mound on the plantation of Samuel Chamberlain.

14,188. Jar. Height, $4\frac{1}{2}$ inches. Burial mound on the plantation of F. Lewis.

14,189. Vase, miniature, bottom conical, painted red. Height, $2\frac{1}{2}$ inches. Found about the head of skeleton in a small mound at Colonel Bingaman's.

14,190. Jar, globular, flattened, with rim and incised scroll designs. Height, 5 inches. Seltzertown mound.

14,192. Cup, cylindrical. Height, $2\frac{3}{8}$ inches; diameter, 2 inches. Burial place at F. Lewis'.

14,193. Jar, with incised design of human face; opening at mouth. Plate 16. Height, 4 inches. Largest of the Bingaman mounds.

14,194. Jar, urn-shaped with incised decoration. Height, 6 inches. Mound near Fort Rosalie.

14,195. Bowl with incised line decoration. Diameter at top, 5 inches. Burial mound on St. Catherine Creek.

14,196. Jar with flange rim and incised chevron decoration. Diameter at top, $4\frac{1}{4}$ inches. Mound on plantation of Samuel Chamberlain.

14,197. Jar, cup-shaped, with incised design in chevron pattern. Found with skeleton on plantation of F. Lewis.

14,198. Cup, barrel-shaped, $4\frac{1}{4}$ inches in height, and $3\frac{1}{4}$ inches in diameter at top. Burial mound at Washington, belonging to Colonel Wales.

14,199. Bowl with shoulder and flaring rim. Diameter at top, $6\frac{7}{8}$ inches. Mound at Mrs. Ferguson's.

14,201. Bowl with scroll decoration and incurved rim. Plate 14. Diameter, 6 inches. Found with skeleton on the plantation of F. Lewis.

14,202. Cup with incised scroll decoration and incurved rim. Diameter at top, $3\frac{1}{2}$ inches. Found at the neck of skeleton on the plantation of Mr. Lewis.

14,203. Cup, hemispheric, with incised scroll ornament. Diameter, $2\frac{3}{4}$ inches at top. Found near the head of skeleton in small mound at Samuel Chamberlain's.

14,205. Cup, with two perforations on opposite sides of rim, and incised herring-bone decoration. Plate 17. Diameter at mouth, $2\frac{1}{2}$ inches. Small mound at Race Course.

14,206. Terra-cotta bowl. Diameter at top 3 inches. Found with skeleton on plantation of Colonel Adam Bingaman.

14,207. Cup, hemispheric. Diameter at top, $3\frac{3}{8}$ inches. Found about a skeleton on the plantation of Mr. Railey.

14,209. Saucer. Diameter, $4\frac{3}{4}$ inches. Mound at Quitman's.

14,210. Saucer with shoulder. Diameter, $5\frac{1}{4}$ inches. Mound at Seltzertown.

14,211. Bowl, nearly hemispheric. Diameter, $5\frac{3}{4}$ inches. Taken from a shaft 30 feet deep, in the Great Seltzertown mound.

14,212. Dish, plain. Diameter, $6\frac{3}{8}$ inches. Found in a mound near Vicksburg, with six other small vessels, all of which fell in pieces.

14,213. Jar, with incised scroll ornament. Height, 3 inches. White Apple Village mound.

14,217. Jar, rim broken, incised design. Small mound at Race Course.

14,128. Terra-cotta head of animal, handle of small saucer. Ferguson mound. Identified by Mr. Cushing as badger.

14,302. Fragment, handle of vessel. Frog's head. Connor's Temple mound. Second Creek.

14,522. Terra-cotta head and bust, fragment of vessel. Red pottery. Vicinity of Great Ferguson mound.

14,225 *b*. Fragment pottery, rim of jar. Below Natchez.

14,225 *c*. Fragment pottery, rim of jar. Seltzertown mound.

14,225 *i*. Fragment pottery. Bingaman's mound.

14,712. Fragment small boat-shaped vessel. Field near Ferguson's mound.

14,526. Fragment of small rectangular red clay tablet, originally $2\frac{1}{2} \times 1\frac{7}{8}$ inches. Ferguson's mound.

14,527. Small rectangular brick tablet. One face smooth, $1\frac{1}{8} \times 1\frac{7}{8}$ inches, the other ridged. Grafton's.

14,529. Small square of red brick, $1\frac{1}{8} \times 1\frac{1}{4}$ inches. Bingaman's.

14,295. Pipe, with incised designs. Small burial mound at Colonel Bingaman's.

14,296. Pipe. Mound at Dunbar's.

14,297. Pipe. Field near Minor's mounds.

- 14,298. Pipe. Stower's mound.
- 14,299. Pipe bowl, fragment. Near Elliott's mounds.
- 14,300. Pipe. Bird-shaped, head broken. Natchez.
- 14,535. Pipe stem, length $3\frac{1}{2}$ inches. Great Seltzertown mound.
- 14,110. Terra-cotta disk, perforated, (whorl). Diameter, $2\frac{1}{4}$ inches. Lewis' mound.
- 14,122. Pottery disk. Diameter, $1\frac{1}{8}$ inches. Railey's mound.
- 14,318.† Disk, one face bearing nine incised spots regularly arranged in a square. Diameter, $1\frac{1}{8}$ inches. Fort Rosalie.
- 14,319. Ear plug, highly concave sides. Diameter, $1\frac{1}{8}$ inches. White Apple Village.
- 14,320.† Disk, one face covered with about 21 small holes. Diameter, 1 inch. Ferguson's mound.
- 14,321. Disk with ridged edges, highly polished. Probably an ear plug. Diameter, $1\frac{1}{8}$ inches. White Apple Village.
- 14,323. Pottery disk, highly finished, probably ear plug. Diameter, $1\frac{1}{8}$ inches. Seltzertown mound.
- 14,324. Pottery ear plug, sides convex, ridged edges, polished. Diameter, $\frac{7}{8}$ inches. Ferguson mound.
- 14,325. Small pottery tool or ear plug. Mound at Kibby's.
- 14,369. Pottery disk, perforated with incised ring surrounding hole. Diameter, $1\frac{1}{4}$ inches. Back of Natchez.
- 14,536. Pottery fragment in shape of awl handle. Roach's mound.
- 14,531. Irregular masses (7) of burnt clay, containing impressions of leaves and vegetable matter from various mounds.
- 14,799. Fragment similar to above, containing mud-wasp's nest. Seltzertown mound.
- *†14,537. Cranium. Showing antero-posterior compression and erosion of the outer table of the skull, probably the result of disease. Mound of Ferguson group, about five feet below surface. The bones of the skeleton were entirely gone, leaving only white lines to indicate them.

† See Dickeson's *American Numismatic Manual*, Plate I, 1, 7, 10, where these objects are imperfectly and incorrectly figured as aboriginal coins.

† The publication of a description of these skulls is contemplated in an early issue of the BULLETIN. A similar skull from Natchez is figured by Morton, *Crania Americana*, Plates 20, 21.

14,539. Skull, with lower jaw; marked antero-posterior compression. Great Seltzertown mound, eleven feet from the surface.

14,540. Cranium. Much compressed at back. Kibby mounds. It, with the rest of the bones, was buried in a large vase which could not be preserved.

14,543. Cranium. Showing antero-posterior compression. Mound at the plantation of Mr. Lewis. Four small cups and jugs, one of which we secured entire, were found about the skull.

14,544. Cranium. Small mound at Race Course.

14,550. Inferior maxillary bone. Mound at Chamberlain's.

14,551. Inferior maxillary bone. Mound at Ferguson's.

14,588. Fragments skull (8).

14,670. Fragments (10) cremated skulls.

14,760. Human teeth, deciduary, (14) from mounds. Said to have been found in small jars placed on the chest.

14,555. Cervical vertebra, transfixed with large broken arrow or spear head. Adams County.

14,552. Os sacrum (3). Mounds at Natchez.

14,553. Os innominatum. Mound at Natchez.

14,554. Arm bones, two radii, and one ulna, and clavicle.

14,584. Fragments leg bones (2), one calcined ankle bone, and fragment sternum.

14,589. Fragment arm bone, calcined.

14,841. Os humerus of infant. Fort Rosalie, Natchez.

14,462. Bony scales (9) of alligator gar fish. From mounds.

14,472. Large conch shell, much disintegrated. Found in the centre basin of the altar-hearth, along side of several stone ornaments and beads of the altar mound, on the plantation of William Connor. A large shell of this sort was found in the centre of every hearth in the Temple mounds.

14,482. Leg bone, with spur, of turkey. From mound.

14,583. Under jaws of bear from mound. Adams County.

14,585. Mastodon bone. Fragment of head of leg bone. Kibby mound.†

14,586. Small bone from foot of mastodon. Burial mound at William Elliott's.

† For reference to these bones, see: "Man and the Mylodon," by Thomas Wilson. *The American Naturalist*, July, 1892.

14,587. Fragment leg bone of mastodon. From a small mound of the Ferguson group.

14,650. Fossil shark's teeth, perforated. From mounds. One from Connor's.

*14,464-67. Eight thin sections of fossil encrinite stems, perforated.

*14,754. Twenty-four fragments jasperized encrinite stems.

*†14,765. Fossil encrinite stem.

14,663. Fossil shells (5) from mounds.

14,485. Six wrought iron spikes and nails. Fort Rosalie.

14,486. Small brass box. Fort Rosalie.

14,487. Small brass disk with screw thread.

14,488. Brass button.

14,489. Metal button, eagle and "7 R."

14,668. Metal button, flower ornament.

14,491. Musket balls (3). Fort Rosalie.

14,492. Fine steel wire chain. Length, about 9 inches.

14,814 a. Gun flints (3).

LOUISIANA.

14,123. Polished celt. Length, $2\frac{1}{2}$ inches. Found in a field at Feriday's.

14,124. Polished celt. Length, $2\frac{1}{2}$ inches. Mound at Feriday's.

14,148. Polished celt, one flat surface. Length, $6\frac{1}{4}$ inches. Feriday's.

14,254. Polished celt. Length, $6\frac{1}{4}$ inches. Small mound in Concordia Parish at Feriday's.

14,283. Polished celt. Length, $4\frac{3}{4}$ inches.

14,284. Polished celt. Length, $4\frac{1}{2}$ inches.

14,577. Fragment polished quartz celt. Tensas.

14,580. Fragment polished celt. Williams'.

14,711. Polished celt, made from pebble, upper end (base) curved. Length, $2\frac{1}{2}$ inches. Feriday's.

14,131. Pestle-shaped stone, polished, (fragment). Length, $4\frac{3}{4}$ inches. Concordia.

14,106. Steatite pipe in shape of four-sided pyramid. Length, $2\frac{1}{8}$ inches. Dr. McIntosh Williams, Tensas.

† Dickeson's *American Numismatic Manual*, Plate II, 6, 7, 10, 17, 18, 19.

- *14,167. Small cone of sandstone, with hollow base. Regarded by Dickeson as rudimentary pipe. Trinity mounds.
- 14,133. Stone bead. Length, $\frac{7}{8}$ inches. Vidalia mound.
- 14,783. Bead-shaped pebble of red jasper, $1\frac{1}{8}$ inches in length. Found at neck of skeleton. Tensas mound.
- 14,795. Thin rectangular slab of polished red jasper. Length, $1\frac{3}{8}$ inches. Mound, Tensas.
- *14,114. Sandstone ball. Tensas River.
- 14,504. Hammer stone, oval. Black River.
- 14,108. Chunkee stone of translucent quartz, with deep concavities. Diameter, $6\frac{3}{8}$ inches. Dug from small mound.
- 14,132. Stone bead, perforated. Tensas mound.
- 14,136. Stone bead, unfinished and unperforated. Tensas mounds.
- 14,135. Pointed, cigar-shaped, polished stone. Length, $2\frac{1}{2}$ inches. Near Tensas mound.
- 14,111. Facsimile of sandstone pipe. Length, $4\frac{1}{2}$ inches. Found in a field on the plantation of Mr. Davis, Concordia.
- *14,109. Limonite pebble with perforation. Tensas mounds.
- *14,140. Limonite pebble, oblong, cup-shaped, rattles. Tensas mounds.
- *14,414 c. Limonite pebble, irregular, broken. Concordia.
- *14,467 a. Pebbles (3). Limestone concretions. Williams' mound.
- *14,134. Polished pebble, (basalt?). Pestle-shaped. Length, $2\frac{1}{4}$ inches. Vidalia.
- 14,115. Plummet with ridged head. Length, $2\frac{1}{2}$ inches. Trinity mound.
- 14,116. Plummet with groove at top, broken. Length, $2\frac{1}{2}$ inches. Vidalia.
- *14,316. Plummet. Trinity.
- 14,117. Paint cup, boat-shaped. Length, $2\frac{1}{8}$ inches. Feriday's mound.
- 14,137. Paint trough, jasper. Natchitoches Parish.
- 14,144 a. Jasper blade. Catahoula County.
- 14,144 b. Jasper blade. Catahoula County.]
- 14,144 c. Jasper blade. Catahoula County.
- 14,146 a. Jasper blade. Catahoula County.
- 14,706 a. Jasper scraper. Tensas mounds.
- 14,708 a. Jasper disk. Vidalia mounds.

14,727 *b*. Novaculite blade. Length, $3\frac{1}{8}$ inches. Feriday's.

14,731 *e*. Jasper blade. Length, 3 inches. Trinity.

14,735 *e*. Jasper blade. Feriday's.

14,735 *f*. Jasper blade. Riddell's.

14,735 *k*. Jasper blade. Williams'.

14,735 *p*. Jasper blade. Little River mounds.

14,735 *q*. Jasper blade. Caulker's Creek mounds.

14,735 *s*. Jasper blade. Biloxi.

14,737 *e*. Jasper blade. Length, $2\frac{1}{2}$ inches. Feriday's.

14,737 *k*. Jasper blade. Length, $2\frac{1}{2}$ inches. Feriday's.

14,741 *d*. Jasper blade, scraper, serrated edges. Tensas mounds.

14,741 *e*. Jasper blade, scraper. Feriday's mound.

14,741 *h*. Jasper blade, scraper. Riddell's mound.

14,741 *i*. Jasper blade, scraper. Feriday's mound.

14,741 *k*. Jasper blade. Williams' mound.

14,807 *a*. Jasper knife. Feriday's.

14,807 *c*. Jasper drill. Feriday's.

14,809 $\frac{1}{2}$ *a*. Jasper blade. Length, $3\frac{1}{4}$ inches. Williams'.

14,809 $\frac{1}{2}$ *b*. Jasper blade. Catahoula County.

14,809 $\frac{1}{2}$ *c*. Jasper blade. Length, 2 inches. Riddell's.

14,809 $\frac{1}{2}$ *e*. Jasper blade. Catahoula County.

14,820 *a*. Jasper blade. Catahoula County.

14,092. Bowl, without ornament. Diameter, $7\frac{1}{2}$ inches. From side of skeleton in a mound on the plantation of Dr. Kiddel, on Black River.

14,093. Bowl. Diameter, $4\frac{3}{4}$ inches. Small mound on the banks of the Ouachita River.

14,094. Cup, plain. Diameter, 4 inches. Burial mound at Feriday's.

14,095. Cup with incised festoon pattern. Diameter at top, $4\frac{5}{8}$ inches. Mound at Trinity.

14,096. Jar, globular, with rim ornamented with incised chevron pattern. Diameter at mouth, $3\frac{1}{4}$ inches. Mound at Dr. Williams'.

14,097. Globular jar with neck, painted red. Height, 4 inches. Waterford.

14,099. Bowl, edge incurved. No decoration. Diameter at top, $5\frac{5}{8}$ inches. Mound at Biloxi.

14,102. Fragment large vessel, with design in relief representing human face. Found in a mound at Trinity.

14,129. Fragment large jar with impressions of fabric on outer surface. Concordia.

14,179. Jar, globular, with rim, and incised scroll design. Plate 15. Height, $4\frac{3}{4}$ inches. Mound in Morehouse Parish, near the banks of the Mississippi.

14,180. Jar, globular, with rim, and incised scroll design. Height, $4\frac{3}{4}$ inches. Same mound as preceding.

14,214. Jar, globular with long neck, plain. Height, 7 inches. Mound at Waterproof.

14,220. Jar. Height, $3\frac{1}{4}$ inches. Mound at the Morehouse Parish system.

14,225 *a*. Fragment pottery. Incised decoration. Bayou Pierre above Natchitoches.

14,225 *e*. Fragment pottery. Ouachita River.

14,225 *f*. Fragment pottery. Sabine River.

14,225 *g*. Fragment pottery. Natchitoches.

†14,126-7. Terra-cotta tablets, rectangular, $1\frac{5}{8}$ by $1\frac{1}{8}$ inches, and $\frac{1}{4}$ inch thick, each with impressed design of a human hand. Discovered in a small jar finely decorated with zigzag lines, embedded in light-colored ash, about the neck of a skeleton. Ouachita Parish.

14,227 *a*. Fragment pottery, rim of jar. West of Red River, 35 miles.

14,103. Terra-cotta head. Fragment or handle of vessel. Trinity mounds.

14,104. Terra-cotta head, female. Fragment vessel. Tensas mounds.

14,771. Cast of small terra-cotta head. Tensas mounds.

14,662. Small terra-cotta reptile head. Tensas mound.

14,533. Terra-cotta foot and portion of leg. Williams' mound.

†14,118. Pottery disk, one face with five incised lines. Diameter, $1\frac{3}{4}$ inches. Small mound at Dr. Riddell's, Black River.

14,119. Pottery disk, rough. Diameter, $1\frac{1}{2}$ inches. Trinity mound.

† Dickeson's *American Numismatic Manual*, Plate III, 5, 7

† Dickeson's *American Numismatic Manual*, Plate III, 8.

14,120. Pottery disk, smooth faces. Diameter $1\frac{1}{2}$ inches. Trinity mound.

14,121. Pottery disk. Diameter, $1\frac{1}{2}$ inches. Tensas mound.

14,105. Pipe. Tensas mounds.

14,301. Pipe, curved. Found near Feriday mounds. Believed to have been made by the Choctaw.

14,141. Cranium, not flattened. Mound on the Ouachita River.

14,142. Cranium, showing antero-posterior compression. Mound on the Ouachita River.

14,143. Cranium fragmentary. Burial mound at Feriday's, Concordia.

14,547. Cranium, showing antero-posterior compression. Mound on plantation of Dr. McIntosh Williams, Tensas Parish.

14,548. Inferior maxillary bone. Mound at Dr. McIntosh Williams'.

14,549. Inferior maxillary bone. Mound at Ouachita River.

14,130. Unio shell. Mound in Tensas.

14,669. Rosary with medal. Bayou Pierre.

The following specimens, from mounds in Mississippi and Louisiana, in the vicinity of Natchez, cannot be definitely located:

13,954. Polished celt. Length, $1\frac{7}{8}$ inches.

14,244. Polished celt. Length, $2\frac{7}{8}$ inches.

14,253. Polished celt, edge broken. Length, $3\frac{3}{4}$ inches.

14,255. Polished celt. Length, $2\frac{1}{4}$ inches.

14,256. Polished celt. Length, $3\frac{1}{2}$ inches.

14,257. Polished celt. Length, $3\frac{5}{8}$ inches.

14,258. Polished celt. Length, $2\frac{1}{2}$ inches.

14,259. Celt. Length, 3 inches.

14,272. Polished celt, chisel-shaped. Length, $1\frac{3}{4}$ inches.

14,273. Polished celt, with incised line at base. Length, $1\frac{3}{4}$ inches.

14,287. Pitted celt. Length, $6\frac{5}{8}$ inches.

14,293 a. Jasper chisel, broken.

14,342. Chisel. Length, 4 inches.

14,576. Celt, fragment.

14,578. Celt, fragment.

14,579. Celt, fragment.

- 14,581. Celt, fragment.
 14,582. Celt, fragment.
 14,599. Chisel. Length, $3\frac{1}{8}$ inches.
 14,601. Polished celt, narrow. Length, $1\frac{3}{4}$ inches.
 14,602. Chisel. Length, $1\frac{1}{2}$ inches.
 14,603. Chisel. Length, $1\frac{3}{4}$ inches.
 14,626. Polished celt. Length, $2\frac{1}{4}$ inches.
 14,627. Polished celt. Length, $2\frac{1}{2}$ inches.
 *14,628. Polished celts. Length, $1\frac{1}{2}$ to $1\frac{3}{4}$ inches.
 14,630. Polished celt. Length, $2\frac{3}{4}$ inches.
 14,631 a. Celt. Length, $2\frac{1}{2}$ inches.
 14,631 a. Celt. Length, $2\frac{1}{4}$ inches.
 14,632. Celt, fragment.
 14,633. Celt. Length, $1\frac{3}{4}$ inches.
 14,634. Celt. Length, $2\frac{1}{2}$ inches.
 14,635. Celt, chisel-shaped. Length, $1\frac{3}{4}$ inches.
 14,636. Celt. Length, $2\frac{7}{8}$ inches.
 14,637. Celt. Length, $2\frac{7}{8}$ inches.
 14,638. Chipped and polished celt. Length, 4 inches.
 14,639. Celt, fragment.
 14,640. Celt, hematite, fragment.
 †14,699. Miniature celt, perforated, green stone.
 14,710. Miniature chisel, jasper.
 14,762. Polished celt, pebble. Length, $2\frac{1}{4}$ inches.
 14,763. Chisel, broken.
 14,774. Small celt, unfinished.
 14,477. Limonite bead, tubular. Length, $2\frac{1}{2}$ inches.
 14,484. Jasper bead, tubular. Length, $2\frac{1}{4}$ inches.
 14,315. Plummets, with groove near one end. Length, $3\frac{3}{8}$ inches.
 13,953. Boat-shaped stone of limonite, nearly hemispheric. Length, $2\frac{1}{8}$ inches.
 14,028. Boat-shaped stone of highly-polished serpentine, Length, 6 inches.
 *14,326. Nail-shaped object of stone. Length, $1\frac{3}{4}$ inches. Probably an ear-plug.
 14,339. Discoidal stone. Diameter, $2\frac{3}{4}$ inches. One face smooth and convex; other shows pecking.

† Dickeson's *American Numismatic Manual*, Plate II, 8.

- 14,382. Discoidal stone, faces concave. Diameter, $2\frac{5}{8}$ inches.
- 14,387. Polished green stone disk, convex. Diameter, $1\frac{7}{8}$ inches.
- *14,790. Polished black pebble.
- *14,460. Mass galena from mound.
- †14,461. Two crystals of galena from mounds.
- *14,462. Galena from mound.
- *14,463. Galena from mound.
- *14,647. Red jasper pebble.
- 14,746. Jasper nodule, shows chipping.
- 14,759. Jasper pebble, one face worked flat, and polished.
- *14,780. Jasper pebble (coral petrification).
- 14,494. Stone hammer, grooved, nearly globular. Diameter, $3\frac{1}{8}$ inches.
- 14,499. Stone hammer, head nearly globular. Diameter, $3\frac{1}{2}$ inches.
- 14,502. Stone hammer, oval. Diameter, $4\frac{1}{4}$ inches.
- 14,505. Stone hammer, oval. Longest diameter, $4\frac{1}{2}$ inches.
- 14,784. Polishing stone. Jasper pebble.
- *14,397. Limonite pebble cup.
- *14,416 a. Limonite pebble.
- *14,417. Limonite pebble.
- *14,701. Small pebbles (12) chiefly limonite.
- *14,761. Small limonite pebbles, (12).
- *14,794. Limonite pebble, broken.
- *14,826. Small limonite pebbles, (5).
- *14,843. Limonite pebbles (5).
- *14,686. Limestone concretions (19).
- *14,687. Limestone concretions (5).
- *14,688. Limestone concretions (4).
- *14,664 d. Agate pebble.
- *14,752. Polished translucent pebbles, (15), quartz, etc.
- *14,753. Polished pebbles, (23), quartz, agate, jasper.
- *14,789. Polished pebbles, (19), quartz, agate, jasper.
- *14,831. Polished pebble.
- *14,775. Jasper pebble.

†The faces of these crystals have devices on them, cut, no doubt after they were found. See Dickeson's *American Numismatic Manual*, Plate IV. 11, where they are figured as aboriginal money.

- *14,790 *a*. Sall moval pebble.
- 14,791. Jasper pebble.
- 14,832. Black jasper pebble. Shows working.
- *14,594, 14,596. Two pieces of lava.
- *14,595. Fragment pumice stone from mound.
- *14,792 *b*. Cement (?) from mound.
- 14,144. Jasper blade.
- 14,147. Jasper blades (3).
- 14,705. Jasper turtle-back.
- 14,706. Jasper disks (3).
- 14,708. Jasper disk.
- 14,720. Jasper blade. Length, $5\frac{1}{2}$ inches.
- 14,722 *d*. Novaculite blade.
- 14,723 *h*. Jasper blade. Length, $3\frac{1}{2}$ inches.
- 14,725. Flint blade. Length, 5 inches.
- 14,726. Jasper blades, (18), serrated edges, with tang, large.
- 14,726 *c*. Jasper blade.
- 14,727. Jasper blades (3), large.
- 14,728 *d*. Seven jasper blades.
- 14,729. Three novaculite blades.
- 14,730. Jasper blades, (12) various.
- 14,730 *b*. Jasper blade, serrated. Length, $3\frac{1}{2}$ inches.
- 14,730 *c*. Jasper blade.
- 14,730 *d*. Jasper blade. Length, $3\frac{1}{2}$ inches.
- 14,731. Jasper blades (18).
- 14,731 *b*. Jasper blades (16).
- 14,733. Flint blade.
- 14,734 *g*. Jasper blade, double notched. Length, $2\frac{1}{2}$ inches.
- 14,734 *h*. Jasper blade, double notched. Length, $2\frac{3}{8}$ inches.
- 14,734 *i*. Jasper blades (2), double notched.
- 14,735. Jasper blades (20).
- 14,736. Chert blades (9).
- 14,737. Jasper blades (8).
- 14,739 *c*. Jasper blade.
- 14,740. Jasper scrapers, (10), various shapes.
- 14,741. Jasper blades, (2), (scrapers).
- 14,742. Jasper drills (7).
- 14,742 *b*. Jasper blade, very slender, notched. Length, $2\frac{1}{2}$ inches.
- 14,743 *d*. Jasper drills (2).

- 14,785. Fragments jasper, (2), blade material.
14,807. Jasper scrapers (9).
14,809. Jasper knives, (4), chipped edges.
14,809½. Jasper blades, (20), various shapes.
14,810. Jasper disks, (7), with chipped edges, about an inch in diameter.
14,811. Jasper fragments, (7), unfinished blades and rejects.
14,814. Jasper blades (6).
14,819. Jasper blades (7).
14,819 *a*. Jasper fleshing implements, (2).
14,819 *b*. Jasper blade, shield-shaped.
14,819 *c*. Novaculite blade.
14,820. Jasper blades, (28).
14,823. Minute blades, (7) various.
14,100. Globular undecorated jar. Fragmentary. Light-colored pottery.
14,101. Fragments, (2) small globular jar, incised scroll decoration.
14,182. Globular jar with incised scroll decorations. Diameter, mouth, 3½ inches.
14,185. Globular jar with rim. Incised decoration in right lines. Diameter at mouth, 3¼ inches.
14,191. Small jar with neck, incised decoration. "Arundo." Height, 4½ inches.
14,200. Bowl, incised scroll decoration. "Arundo." Diameter at top, 5 inches.
14,204. Small cup, with incised decorations. Two holes on opposite sides near edge. (Reproduction?)
14,208. Fragmentary small undecorated globular jar.
14,216. Saucer, highly polished, with incised scroll decorations. Width at top, 4¾ inches.
14,221. Jar, fragmentary, four-cornered, with incised decoration.
14,222. Fragments (2) of jar with chevron pattern. Wide mouth.
14,224. Fragment, jar.
14,346. Miniature jar with rim. Undecorated. Highly polished.
14,159. Small wooden vessel, shaped like a canoe, with square stern. Finely finished. Length, 3½ inches. From grave.

14,538. Cranium, evidently of a child, believed by Dickeson to be that of a Choctaw. Found in a hollow tree, the opening having completely grown over. The tree was five feet in diameter.

14,541. Cranium, showing antero-posterior compression.

14,542. Cranium, showing antero-posterior compression.

14,546. Cranium, fragmentary, antero-posterior compression.

14,017. Iron axe.

14,018. Iron axe.

14,528. Fragment, brick, rectangular. Apparently of European manufacture.

†14,813. Small shells, (13).

14,840. Small worked shell ornament, club shaped.

SHELL BEADS:

14,424. Six.

14,425. Eight.

14,440. Eight. Stained green with copper.

14,441. Nine.

14,442. Five. Cut from Columnella.

14,443. Five.

14,444. Twelve. Stained green with copper.

14,445. Eight.

14,446. Seven.

14,447. Seven.

14,448. Two.

14,459. Three.

14,468. Three.

14,469. Two.

14,470. Eight.

14,471. Four.

14,658. Ten.

GLASS BEADS:

14,149. Milk white, (9).

14,150. Yellow, fluted.

14,151. Blue, (8).

14,152. Blue, (10).

14,153. Blue, (8).

† See Dickeson's *American Numismatic Manual*, Plate V.

- 14,154. Blue, (11).
- 14,155. Blue, (6).
- 14,423. White, opaque, (7).
- 14,430. Blue, (10).
- 14,431. Blue, (7).
- 14,432. Blue, (7).
- 14,433. Dark blue, (9).
- 14,434. Blue, (8).
- 14,435. Dark blue with white stripes, (8).
- 14,436. Bluish green, (5).
- 14,437. Bluish green, (9).
- 14,438. White, opaque, (6).
- 14,439. Opalescent, (9).
- 14,449. Milk white.
- 14,450. White, fluted.
- 14,451. Bluish white, with blue and blue and red lines (4).
- 14,452. Clear glass, (8).
- 14,453. Blue, (12).
- 14,454. Opalescent.
- 14,455. Blue, (14).
- 14,456. Blue, ornamented.
- 14,457. Green, knobbed.
- 14,458. Milk white, pentagonal.
- 14,460. White, (27).
- 14,465. Blue, pentagonal.
- 14,659. White, (6).
- 14,776. Two.

The following specimens arranged under states and countries, form part of the Dickeson collection :

Alabama.—14,158. Terra-cotta bowl, surface plain. Diameter at top, $5\frac{1}{2}$ inches. Found on the plantation of Thomas English, on the Alabama River.

14,726 *d*. Jasper blades, (4). Pickens and Fayette Counties.

14,730 *h*. Jasper blade. Pickens and Fayette Counties.

Arizona.—14,066. Large maul, one end battered, and other surface polished by wear.

Arkansas.—14,156. Steatite pipe. Carved figures on stem, Indian and white man. Length, $2\frac{1}{2}$ inches. Little Rock.

14,225. Fragment pottery.

- Delaware*.—14,067. Grooved axe. Smyrna.
 14,068. Grooved axe. Smyrna.
Georgia.—14,145, *f*.—Jasper blade, Laurens County.
 14,726 *b*. Jasper blades, (2). Montgomery County.
 14,731 *a*. Jasper blade. Laurens County.
 14,737 *g*. Jasper blade. Laurens County.
Kentucky.—14,089. Banner-stone, slate, (one blade broken).
 Lexington.
 14,768. Casts (5) of one of the heads of the so-called "tri-
 une cup," found on the Cany fork of the Cumberland River.
 The original is figured and described in Josiah Priest's "Ameri-
 can Antiquities," Albany, 1834, p. 263.
 14,145 *a-e*. Jasper blades, (5). Jefferson County.
 14,726 *c*. Jasper blades, (4). Hancock County.
Maine.—14,001. Large steatite plummet. Castine, Han-
 cock County.
 14,003. Fragment pestle. Castine.
 14,002. Celt, with ridge for socketing. "From Forest Man-
 zanilla Calderwood." North Haven, Knox County.
Maryland.—14,069. Grooved axe. Baltimore.
Mississippi.—14,329. Cast of pipe, monitor-shaped. Tom-
 bigbee River.
 14,099. Bowl, edge incurved. No decoration. Diameter
 at top $5\frac{5}{8}$ inches. Mound at Biloxi.
 14,735 *s*. Jasper blade. Biloxi.
Missouri.—14,228. Two fragments pottery.
New Jersey.—14,057. Grooved axe. Burlington.
 14,058. Chipped axe. Burlington County.
 14,059. Grooved axe. Burlington.
 14,060. Grooved axe. Cumberland County.
 14,061. Grooved axe. Burlington County.
 14,062. Grooved axe. Burlington County.
 14,063. Small sandstone mortar, with depression on both
 sides. Burlington County.
 14,657. Large leaf-shaped jasper blade, $7\frac{1}{2}$ inches in length.
 "One of about 150 similar specimens found on draining a
 meadow about three miles south of Trenton."*

* Five other specimens exist in the Museum, four, Catalogue Nos. 172, 14,657, from the same cache, and one, Catalogue No. 13,520, probably from the same cache.

14,830. Twenty-two thin leaf-shaped blades, probably part of a cache of 180 found near Lumberton, New Jersey, of which the Museum has 8 specimens. (Catalogue No. 2089.)

New York.—14,653. Wampum beads, white, (14).

Ohio.—14,026. Large banner-stone.

14,334. Banner-stone. Slate with nicked edge.

14,335. Banner-stone, fragment. Cincinnati.

14,336. Ceremonial stone. Cincinnati.

14,338. Red slate pendant, one perforation. Marietta Mound.

14,340. Discoidal stone, lenticular, of polished quartz. Diameter, 2 inches. Marietta.

14,341. Grooved stone, probably for smoothing sinews. Banks of Ohio River.

14,591. Muller.

14,343. Large leaf-shaped jasper blade. Length, $5\frac{3}{4}$ inches. Banks of Ohio River.

14,307.† Cast, massive red sandstone pipe, human figure on all fours, with collar (rope? serpent?) about neck. Paint Creek near Chillicothe.

14,330. Cast, pipe, paroquet. Ohio.

14,331.‡ Cast, porphyry pipe, human-headed bird. Chillicothe, Ohio.

14,332. Cast, pipe, bird's head. Chillicothe, Ohio.

14,333. Cast, pipe, bear. Chillicothe, Ohio.

14,674. § Cast. "Cincinnati tablet."

14,671. Cast, sandstone image, seated human figure, (female). Height, $11\frac{1}{2}$ inches. Found in a mound.

14,672. Cast, sandstone image, seated human figure, (male). Height, 14 inches. Found in a mound.

14,772. || Cast, tail of rattlesnake, Mound on North Fork of Paint Creek, Ross County.

14,769. Cast, head of alligator in Dorfeul's Museum, Cincinnati.

Pennsylvania.—14,004. Grooved hammer. Germantown.

† See Squier and Davis, Ancient Monuments of the Mississippi Valley. Fig. 148.

‡ Idem, Fig. 147.

§ Idem, Fig. 194.

|| Idem, Fig. 196.

- 14,005. Grooved axe. Lancaster.
- 14,006. Grooved axe. Lancaster.
- 14,007. Grooved axe. Easton.
- 14,008. Grooved axe.
- 14,009. Grooved axe. Lancaster.
- 14,010. Grooved axe. Frankfort.
- 14,011. Grooved axe. Frankfort.
- 14,012. Grooved axe. Reading.
- 14,013. Grooved axe. Chester.
- 14,014. Grooved axe. Germantown.
- 14,015. Grooved axe. Germantown.
- 14,016. Grooved axe. Chester.
- 14,039. Grooved axe. Chester County.
- 14,019. Pestle.
- 14,020. Fragment pestle. Schuylkill County.
- 14,022. Banner-stone of slate. Easton.
- 14,023. Banner-stone. Presented to Dickeson while he was visiting at Easton, Pa. Supposed to come from the vicinity.
- 14,024. Banner-stone. Reading.
- 14,025. Banner-stone of banded slate. Bucks County.
- 14,508. Banner-stone, unfinished, unperforated. Basset farm.
- 14,366. Quartzite pebble gorget, with two perforations. Banks of Susquehanna, near Harrisburg.
- 14,029. Flat slate pendant, perforated, and notched at top. Length, $6\frac{1}{8}$ inches. Eastern Pennsylvania.
- 14,030. Terra-cotta pipe, with curved fox-head bowl and clay stem. Found in excavating the Pennsylvania Canal above Columbia.
- 14,031. Small metal pipe, (tin); length, $4\frac{1}{2}$ inches, bowl surmounted with the figure of a bird. Indian grave near the zinc mines near Bethlehem. A similar pipe, with a bear instead of bird, is figured by Mr. David Boyle, in Fourth Annual Report of the Canadian Institute, Toronto, 1891, p. 67.
- 14,034. Handle soapstone pot. Susquehanna County.
- 14,037. Three perforated fragments of soapstone.
- 14,032. Amber beads, (18). Indian grave.
- Rhode Island.*—14,090. Banner-stone, steatite. Found under the roots of a tree that had been blown down. Mount Hope, Narragansett Bay.

Tennessee.—14,091. Banner-stone, thin and unperforated. Memphis.

14,303. Clay pipe. Indian grave near Memphis.

14,144 *d*. Jasper blade.

14,145 *g*. Jasper blade.

14,146 *b, c, d*. Jasper blades, (3).

Virginia.—14,085. Grooved axe. Mason County.

14,087. Double-grooved axe. Richmond.

14,088. Grooved axe. Richmond.

14,021 Large banner-stone of dark slate, broken.

Mexico.—14,661. Seventeen small terra-cotta heads from the vicinity of Teotihuacan.

13,952. Terra-cotta mask, seven inches in length, skillfully modeled as if from life, and apparently made from a mould.

14,673. Another, similar, but less lifelike, with closed eyes.

No information accompanies these objects. They are similar to, and probably belonged to a collection of Mexican pottery masks now forming part of the Poinsette collection, deposited by the American Philosophical Society in the Academy of Natural Sciences of Philadelphia.

14,598. Statuette, seated human figure, height 11½ inches, probably modern.

Peru.—14,678. Pottery vase representing two figures in the act of coition. A similar vase in the American Museum of Natural History, New York City, collected by Mr. Bandellier, is said to be from Chepen. Mr. Saville states that there is another like it in the Museum of the Trocadero.

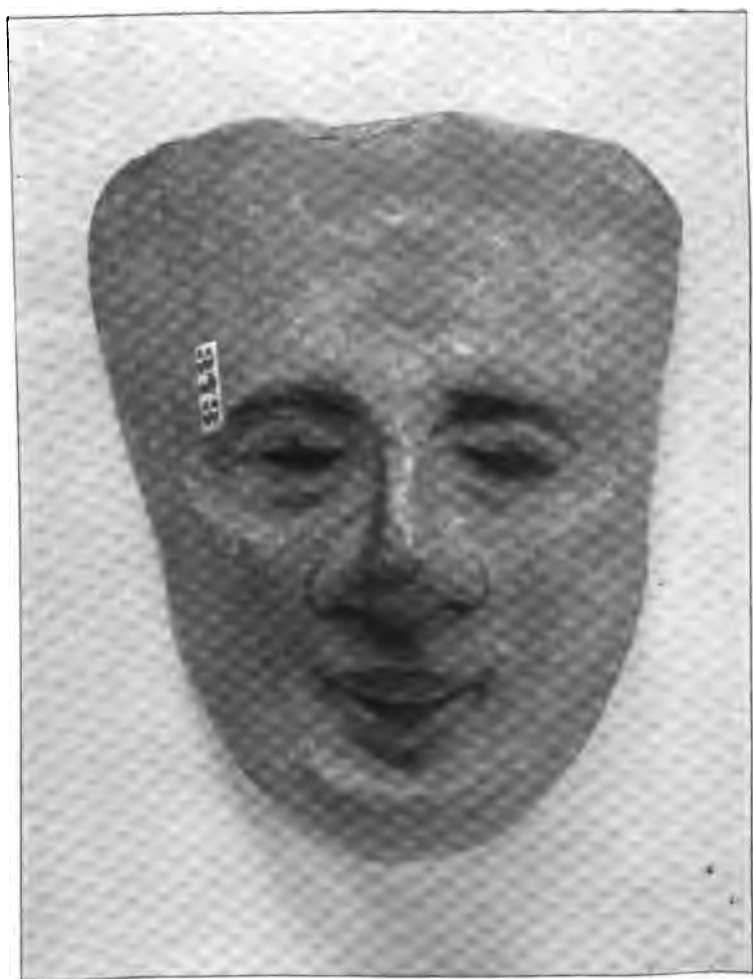


PLATE 18. Terra-cotta Mask, 13,952. Mexico.

EXHIBIT AT THE PARIS EXPOSITION, 1900.

The University of Pennsylvania accepted an invitation from the United States' Commission to the Paris Exposition of 1900, to unite with other American Universities in a common exhibit. Each institution was requested, as the amount of space was limited, to present some special feature of its educational work, and archæology was designated as that most acceptable from the University of Pennsylvania.

The general plan of the exhibit was to make use chiefly of photographs. A set of sixteen wing frames, holding thirty-two pictures and an explanatory label, 22 x 33 inches, was decided upon by the Commission as the unit of space, the space below these frames being available for a desk case, and that above for a large picture. Five such units were assigned to the University, of which one set of wing frames was devoted to general views of the University buildings, while the remaining space was given over to the Department of Archæology.

The preparation of this archæological exhibit was placed in the hands of a committee of curators of the Museum. It was agreed to use enlargements of photographs of objects in the Museum, and of photographs of work carried on by the Department in the field. One set of wing frames, thirty-two pictures, was employed to illustrate the results of the University's expedition at Nippur in Babylonia. Views of the present state of the excavations (1899) were prepared under Professor Hilprecht's direction, together with pictures of some of the more important finds, now in the Museum.

The collections of the Egyptian and Mediterranean Section were illustrated in the same manner by Mrs. Cornelius Stevenson, with pictures of representative objects from various sites in Egypt and Etruria. The following extracts from the labels give some account both of the exhibits and the work of this Section.

The Egyptian Section was established in 1890 by the late Dr. William Pepper, then Provost of the University, and placed by him under the Curatorship of Mrs. Cornelius Stevenson, Sc. D. Relations were established with Mr. W. M. Flinders Petrie personally, as well as with the

Egyptian Exploration Fund, and, more recently with the Egyptian Research Account. Through these channels, collections have been obtained from Naukratis, Tel Defenneh, Bubastis, Medûm, Tel El Amarna, Koptos, Ballas and Naqada, El Kab, Deshasheh, Behnesa, Hierakonpolis, Denderah, Hu, the authenticity of which is beyond a doubt, and the historical horizon of which is more or less certain. These collections are distributed in sites, due regard being paid to chronological sequence. They range from prehistoric times to the Græco-Roman period, illustrating the development of civilization in the Nile Valley, and the evolution of arts and industries from hand-made pottery and stone and copper tools, to the splendid industrial array of Pharaohic times.

The series of photographs here presented and chosen almost haphazard gives only a few of the important objects in the collection.

The Mediterranean collection was begun only in 1894. It so far consists,

I. Of a series of pottery and copper-bronze and bronze tools carefully made by Dr. M. Ohnefalsch Richter and derived from his excavations in the Island of Cyprus, to illustrate the development of ceramics and of metallurgy from the earliest time to the Mycenaean, Phœnician and Greek periods.

II. Of a collection of painted vases from the islands of Crete, Samos, Chios and Southern Italy.

III. Of an extensive Etruscan collection, principally derived from excavations undertaken at Narce, Chiusi, Vulci, Corneto, Cervetri, Civita Castellana, Ardea, Montebello, etc., partly under the direction of Professor A. L. Frothingham for the American Exploration Society, and of which Dr. William Pepper, Hon. John Wanamaker and Mrs. Phebe A. Hearst defrayed the expense.

The tombs of which the sepulchral outfits form the collection, range from archaic times to later ages, and include the well tombs of the Villanova type, passing through the transition period when Villanova urns are found in trench tombs, as well as the chamber tombs of the more recent burials.

A good collection of Greek painted vases from the seventh to the fourth century B. C., a series of "aes" from the rough ingot (or "aes" rude) to the "aes" grave and "aes signatum" of the Roman empire, a very complete series of weights, fair collections of temple terra cottas and of bronzes, statuettes, and some Etruscan inscriptions complete the collection, of the importance of which the few photographs here presented may give a slight idea.

The American Section will be represented by illustrations of the excavations at Marco, Florida, made by Mr. Frank Hamilton Cushing in 1896. This work undertaken jointly by the University and the Bureau of American Ethnology, in Washington, resulted in the discovery of the remains of a pre-historic

Key-Dweller culture, and extremely rich finds of painted wooden masks, ceremonial tablets and wood carvings of high artistic value. The photographs to be exhibited were enlarged from those taken when the objects were found. Through the courtesy of the Bureau of American Ethnology, the reproductions of a series of water-color pictures, illustrating the wooden masks from Marco as found were incorporated as part of the exhibit, and placed in a long frame above the five sections.

The table-case beneath the pictures was also assigned to the American Section, and was employed to display a series of reproductions of the implements used as dice in games and divination by the American Indians. The objects were arranged on five rectangular boards. The centre panel contains an enlarged picture in colors of a masked priest holding three arrows and a throwing-stick, from the Vatican Codex, together with the picture of a prehistoric *atlatl* or throwing-stick in the Museum, and of four arrow shaftments, marked with symbols referring to the Four Directions. The theory of the development of the canes, staves, bones and other objects used as dice from the divinatory use of the arrows and throwing-stick has been published by Mr. Culin in this BULLETIN (Vol. I, page 99). The specimens of dice reproduced are from the following tribes: Apache, Arapaho, Assinaboin, Blackfeet, Cheyenne, Chippewa, Cocopa, Comanche, Gros Ventres, Kiowa, Mandan, Micmac, Mohave, Mohawk, Navajo, Paiute, Papago, Pima, Pomo, Shoshoni, Seneca, Sioux, Tarahumara, Tepeguana, Tewa, Tulare, Twana and Zuñi.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

ALASKA.

The Eskimo.—A collection of ethnological objects from Point Barrow, Alaska, the results of an expedition made for the Department by Mr. E. A. McIlhenny, in 1898, have been presented by the Hon. John Wanamaker. This collection embraces 1589 objects, (Cat. Nos. 41,251-42,839) and comprises, in addition to the material obtained directly from the natives, a large number of objects excavated from graves, as well as six skulls, and a number of illustrative photographs, taken from life, by the collector. The catalogue, which gives the native names and other particulars will be published shortly in the BULLETIN.

UNITED STATES.

Florida.—A fragment of a fossil human femur (42,959) altered into limonite, collected in 1887, by the donor, on the east shore of Sarasota Bay on the west coast, has been presented by Mr. Joseph Wilcox.*

New Mexico.—A small painted jar (13,951) in the shape of an owl, from Zufii, N. M., collected by Mr. Frank Hamilton Cushing, has been presented by Mrs. William Pepper.

Pennsylvania.—The following objects from the vicinity of Milford, Pike County, have been presented by Professor Maxwell Sommerville:

42,851-70. Twenty stone pestles, one, (42,851) 21½ inches in length.

42,871-76. Six fragments of pestles.

42,877. Large pestle, unfinished.

42,878. Large grooved maul, weight 26 pounds.

42,879-82. Four hammer stones.

* See *Notices of Some Fossil Human Bones*. By Professor Joseph Leidy. Trans. Wagner Free Institute, Vol. ii, p. 10, 11.

- 42,883. Discoidal stone.
- 42,884-91. Eight polished celts.
- 42,892-95. Four chipped celts.
- 42,896-905. Twelve polished grooved axes.
- 42,906. Chipped grooved axe.
- 42,907-10. Four grooved pebbles.
- 42,911. Rubbing stone.
- 42,912. Grooved and pitted clay disk.
- 42,913. Polished ridged slate slab.
- 42,914. Fragment steatite pot.
- 42,915. One hundred and fifty-five chipped black flint blades.
- 42,916. Thirty white quartz blades.
- 42,917. Eleven white quartz blades.
- 42,918. Seventy-three argillite blades.
- 42,919. Three chert blades.
- 42,920. Twenty-five red jasper blades.
- 42,921. Fifty-two flint and argillite blades.
- 42,922. Fourteen chert and flint blades.
- 42,923. Four fragments of pot.
- 42,925. Ten fragments large pot.
- 42,926-30. Thirty-three fragments pottery.
- 42,932. Pebble, dumb-bell shaped (fetish).
- 42,934. Four fragments perforated "gorgets."
- 42,943. Large stone mortar.
- 42,962. Fifteen cache blades, argillite. Length, 5 to 6 inches.
- 42,963. Three notched argillite pebbles.
- 42,964. One notched argillite pebble.
- 42,965. Steatite banner-stone.
- 42,966. Steatite banner-stone.
- 42,967. Fragment steatite banner-stone.
- 42,968. Fragment steatite banner-stone.
- 42,969. Steatite gorget, two holes.
- 42,970. Clay pipe stems, fragments (20).
- 42,971. Clay pipe.
- 42,972. Steatite pipe, bear.
- 42,973. Four fragments steatite.

A papoose bag of buckskin (21,759) entirely covered with bead work in conventional aboriginal designs,—made by the

Sioux, and a deerskin woman's robe (21,760) ornamented with beads and paint—probably Arapaho—has been presented by Dr. S. Weir Mitchell.

Seven water color studies (21,654) of American Indian costume have been presented by Professor Morton W. Easton, of the University of Pennsylvania.

An old carved and painted wooden mask (21,764) from the Indians of the Northwest coast has been obtained by purchase (Dickeson Collection).

A finely wrought bead garter, or armlet (42,942), a string of old glass beads (42,941), probably from an Indian grave, in New York or Pennsylvania, a large wooden fish hook (21,742), with a bone barb, from Vancouver Island, and a double grooved stone axe (42,940) with a ground edge probably from somewhere in the eastern part of the United States, with a Siouxan rawhide covered handle decorated with buckskin, beads and feathers, have been presented by Professor Maxwell Sommerville.

A small engraved bone box (21,475), probably Hupa—has been presented by Mrs. William Frishmuth.

Mr. Cornelius Stevenson has deposited a photograph (21,621) portrait of "Sitting Bull," with autograph.

Mrs. William Pepper has presented the following objects:

14,850. Large cinerary urn with human face. From Mitla.

14,851-75. Seven hundred and ten terra-cotta heads from Tiotihuacan.

14,889-96. One hundred and fifty-eight terra-cotta heads from Tiotihuacan.

15,186. Seven terra-cotta heads from Tiotihuacan.

14,876. Small stone image.

14,877. Small polished stone cylinder.

14,878. Red jasper rubbing stone.

14,879. Carved square of lava.

14,880. Stone bead.

14,881. Perforated pottery disk.

14,882. Miniature "incense burner" and cup.

14,883-86. Four miniature cups.

14,887. Terra-cotta hand.

14,888. Perforated pottery disk.

14,997. Fragment, decorated jar rim.

- 15,018-25. Eighth terra-cotta heads.
 15,025-37. Forty-two terra-cotta animal heads.
 15,038-67. Thirty terra-cotta images (fragmentary).
 15,068. Terra-cotta rattle.
 15,069. Terra-cotta head.
 15,070-75. Seven whistles (fragmentary).
 15,076. Terra-cotta mask. {
 15,077. Censer. { From
 15,078. Crayfish. { San Andrés Tuxtla,
 15,079. Mask. { south of Vera Cruz.
 15,080. Image.
 15,081. Pitcher with handle.
 15,082. Small cup.
 15,083. Painted saucer.
 15,084. Fragment jar, figure in relief.
 15,086. Pounding stone.
 15,087. Green stone celt.
 15,088. Plummets (?) of stone.
 15,089. Polishing stone.
 15,090. Chipped stone scrapers.
 15,091. Worked pebble (?).
 15,092. Small lava image.
 15,093. Polished stone image.
 15,094. Polished stone head, State of Guerrero.
 15,096. Polished green stone image. Oaxaca.
 15,097. Polished stone image. Oaxaca.
 15,098. Rudely carved head.
 15,099. Small cylindrical stone.
 15,100. Stone ear plug.
 15,101. Carved wooden handle (?).
 15,102. Fragment tile, relief ornament.
 15,103-4. Six terra-cotta ear plugs.
 15,105-6. Two clay tobacco pipes.
 15,107. Clay pipe bowl.
 15,108-10, 15,112-33. Twenty-six pottery stamps.
 15,111, 15,125. Two pottery moulds.
 15,134-38. Five "incense burners."
 15,139-85. Sixty-six spindle wheels.
 15,187. Fragment tile.
 15,188. Small terra-cotta stamps.

- 15,189. Four obsidian cores.
- 15,190. Seven obsidian knives.
- 15,191. Fourteen obsidian blades.
- 15,192. Two obsidian flakes.
- 15,193. Twelve fragments, highly polished rims of vessels.
- 15,194. Two fragments ladle.
- 15,195. Small stone bead.
- 15,196. Fragments quartz geode.
- 15,197. Forty-five small objects and fragments of terra-cotta.
- 15,200. Terra-cotta head.

MEXICO.

Dr. Adolfo Ferrer (Medical, 1888), has presented a polished celt (42,960), and a chipped celt (42,961), from the ruins of Culiacan, near the Grijalva River, where Cortez landed, in Tobasco.

A bamboo quiver containing poisoned arrows for blow gun and two gourds for the cotton employed as wads for the arrows, (21,757), from the Rio del Darien, have been presented by Dr. S. Weir Mitchell. The arrows are poisoned with "corroval."

SOUTH AMERICA.

A woven basket quiver and poisoned arrows, and small basket containing cotton for wads (21,758), from the Upper Amazon, have been presented by Dr. S. Weir Mitchell. The arrows are poisoned with woorara.

ASIA.

THE FAR EAST.

CHINA.

A protective amulet, *pát kwá* (21,629), pair of straw sandals (21,625), stone rice mill (21,636), a package of envelopes (21,624) and a wood block (21,623) for printing two pages of a book have been obtained by purchase (Dickeson Collection). A dried lizard (21,634), used as medicine by the Chinese, has been presented by Dr. E. S. Potter, and a box of pagoda incense, *héung t'áp* (21,638) by Mrs. William Pepper.

JAPAN.

Two large Kaga plaques, one (21,664) decorated with flowers in colors, 28 inches in diameter, and the other (28,665) decorated with landscape and flowers, 28 inches in diameter, have been presented by Mrs. William Pepper.

A tobacco pipe and case (21,756) has been presented by Dr. S. Weir Mitchell.

The following sword ornaments have been presented by Mrs. William Frishmuth:

21,667-73. Seven inlaid bronze sword guards (*tsuba*).

21,674. Ferrule (*tsuka-kashira*).

21,675. Ferrule (*fuchi-kashira*).

21,676-79. Four hilt ornaments (*menuki*).

21,680-83. Four small knife handles (*kozuka*).

A pair of wooden clogs, *geta* (21,635) have been obtained by purchase.

PERSIA.

The following objects have been presented by Mrs. William Pepper:

21,777. Battle axe, with steel handle and engraved steel blades (double). Length, 37½ inches.

21,778. Battle axe, with steel handle and engraved blade (single). Length, 33½ inches.

21,779. Spear head, bident. Base of blade engraved with flowers. Length, 23 inches.

21,780. Spear head, trident. Base of blade engraved with seated figures, and tines with birds, fish and flowers. Length, 23½ inches.

21,791. Sword or *pulonar*, with steel hilt and drooping quillions. The blade engraved with a mythologic figure and verses from the Koran. Length, 35½ inches.

21,790. Sword or *putonar*, with steel hilt and drooping quillions. The blade has small medallions inclosing figures of birds. Length, 39 inches. Scabbard of wood covered with leather and with engraved brass mounts.

21,783. Dagger, with curved blade, engraved and inlaid with gold. Engraved steel scabbard. Length, 18 inches.

21,784. Dagger, with curved blade and engraved, steel hilt. Length, 14 inches.

21,785. Dagger, with curved blade and engraved ivory hilt. Green leather scabbard. Length, 14 inches.

21,795. Pistol, musketoon, probably of the early part of the present century.

Large decorated faience plaque (21,666), $21\frac{3}{4}$ inches in diameter.

INDIA.

Mrs. Pepper has presented the following arms:

21,782. *Kuttar*. Engraved blade, length, $13\frac{1}{2}$ inches.

21,792. Dagger, with ivory hilt, unguarded. Back of blade, which is worn down by grinding, inlaid with gold. Length, $15\frac{1}{2}$ inches. From Peshawar.

21,788. Sabre, *samsheer*. Hilt and cross guard of steel. Blade engraved with what is probably verses of the Koran. Length 39 inches. From Peshawar.

21,789. Sabre, *samsheer*. Hilt of stained wood and cross-guard of brass. Length, 37 inches. From Peshawar.

21,787. Sword, with blade damascened with gold and slightly curved. Hilt of blackened wood. Length, 30 inches. From Nepaul.

MELANESIA.

GILBERT ISLANDS.

Two swords (21,643), set with shark's teeth, have been presented by Dr. Talcott Williams.

NEW CALEDONIA.

Mrs. Pepper has presented an axe (21,775), with circular stone head. Handle of wood with rattle at end bound with cloth. Diameter of head, $7\frac{1}{2}$ inches; total length, $21\frac{7}{8}$ inches.

SOLOMON ISLANDS.

Two clubs (21,626-27), one fragmentary, have been obtained by purchase (Dickeson Collection).

POLYNESIA.

Hervey Island.—Paddle (21,774) of dark wood, finely carved. Length, $43\frac{1}{4}$ inches.

AFRICA.

ALGIERS.

A large wooden pipe (16,001), inlaid with red glass beads and twisted brass wire, has been presented by Mr. C. Howard Colket.

MOROCCO.

Two daggers (21,754-55) and two guns (21,752-53), have been presented by Mrs. William Pepper.

Mr. C. Howard Colket has presented the following weapons:

16,113. Long, slightly curved sword, length $38\frac{3}{4}$ inches. In leather scabbard.

16,112. Straight sword, length, $28\frac{1}{4}$ inches. In leather scabbard overlaid with engraved brass. Bone hilt, with brass mountings.

16,111. Rude dagger, with horn handle, length, $13\frac{3}{4}$ inches, with wooden scabbard, mounted with sheet-iron bands.

Dr. Talcott Williams has kindly furnished the following notes on the above:

The first (16,113) is the regulation or customary sword worn by the irregular cavalry in Morocco, who are known to the people as *Makhzen*. The word strictly means belonging to the treasury, and this irregular cavalry consists of men who furnish military service in lieu of paying taxes. How long they have worn this sword I do not know; it is evidently an imitation of the European cavalry sabre, unless, indeed, that sabre is derived from this sword. Some blades occur with marks of the last century. This blade has on the haft a forge mark which is the forge mark of northern Morocco, though the precise place I cannot designate. It also has on it an obscure stamp, which, I think, is Ben Ali, though I cannot be certain of this, as it is somewhat defaced. The hilt is made of olive wood, as is the case with most of these swords, and is provided with the usual double guard. Among weapons, this sword belongs to the family of cavalry sabres and has very little in common with most Oriental cavalry weapons, which are generally intended for cutting and not for the thrust. Why the double basket exists on the back of the sword I do not know. This ornament is the ornament of northern Morocco, but has nothing sufficiently characteristic about it to determine the place. The sword is worn, as the cords indicate, as a hanger and not in a sword belt.

The next largest sword (16,112) has an ornament similar to that of Moorish implements, though the shape of the handle is altogether different. The ornament of the scabbard is distinctly Berber, and the general style of the weapon inclines towards northern Morocco. The blade, once of

considerable dimensions, has been ground down to a dagger. The inscription on the blade is apparently Berber.

The last (16,111) is a small knife forged in 1298 (1881) by a native smith, and has on it a name of which I can only make out the end, Ben Hal. It must have been made somewhere in Morocco, as the scabbard and figures settle this fact. It is the rude knife of a camel driver or some man in similar position, and carried less as a weapon than as a sailor carries his knife. The two marks on the hilt of the blade are forge marks. These, of course, are quite unrecognizable without a greater knowledge of the country than a traveler can possess, but I found that nearly all of them were constantly recognized by dealers. The most esteemed blades in South Morocco have on them the forge mark of a forge in the Susi country, whose trade mark is a rude horse.

SOUDAN AND UPPER EGYPT.

A tobacco bag (21,761), containing tobacco, said to be made of the foetus of a hippopotamus, and to come from the Soudan, and a leather carrying-bag (21,776), purchased on the Nile near Assouan, have been presented by Dr. Weir Mitchell.

EUROPE.

FINLAND.

A pair of skis (21,656) $9\frac{3}{4}$ feet in length, have been presented by Mrs. William Frishmuth.

RUSSIA.

A carved wooden stamp (21,630), used to stamp the sacred loaf, has been obtained by purchase (Dickeson Collection).

A pair of pistols (21,793) with carved wooden stocks and engraved steel mounts, dating from 1840 to 1860, have been presented by Mrs. William Pepper.

SCANDANAVIA.

Five chipped celts (42,974-75), have been presented by Professor Maxwell Sommerville.

SPECIAL COLLECTIONS.

American History.—A pair of old pattens (21,743), have been presented by Miss Anna C. Phillips.

Fans. Mrs. Joseph Drexel has made the following additions to her collection :

21,744. China. Folding fan, *hak shn*, with ivory sticks and black paper leaf decorated in gold, with conventional designs in four panels, one bearing the autograph of Viceroy Li, by whom it was presented to Mrs. Drexel, for her collection.

21,652. China. Folding fan, with sticks and guards of mottled tortoise-shell, each with two panels bearing gilded designs. In the middle, figures of Chinese men and women, and in the outer, conventional butterflies. Two narrow paper leaves, separated by the panels with figures, are decorated with figures and flowers in conventional designs. From Manila.

21,644. Japan. Toy fan in form of bird, with wings of paper which may be extended.

21,649. Japan. Crescent-shaped fan, *uchiwa*, with plain paper leaf.

21,657. Japan. Round fan, *uchiwa*, painted with picture of monkey holding a flag. On blowing into an opening in the fan back of the flag, a concealed paper bag, painted to represent a monkey, is inflated behind the flag.

21,773. Korea. Round fan of lacquered paper, in three colors, red, green and yellow.

21,749. France, Louis XVI. Folding fan with fretted ivory sticks and guards, the former carved like lace in Chinese patterns. Swan skin leaf finely painted in three panels with pastoral designs. Reverse, pastoral and Chinese figures. Purchased in Madrid.

21,750. France, Louis XVI. Folding fan with fretted and painted ivory sticks, with swan skin leaf painted in three panels with pastoral scenes and on the left a ship. Reverse, pastoral design. Purchased in Madrid.

21,716. France, Louis XVI. Folding pear wood fan, *brisé*,

fretted, and painted with four medallions and having a central panel with colored engraving by Bartalozzi, of a market woman and child. Two of the medallions are painted in cameo style, one with the attributes of love and the other of music. Such fans were called pastoral, and used with wash dresses by Marie Antoinette and the women of the close of the century. Purchased in Venice.

21,690. France, Louis XVI. Folding fan with carved and gilded ivory stick; white silk leaf painted with flowers and insects, and embroidered with gilt spangles framing three colored prints. The central picture represents Louis XVI giving the constitution to France. On the left, France with a liberty cap beside the altar of Peace. On the right, a soldier representing the army or Force. The date is that of the signing of the constitution, and the fan is classified as a memorial fan.

21,729. France, end of the 18th century. Folding fan, *brisé*, with fretted ivory sticks rounded at the top and richly painted in gouach. Design of fretted scallops in gray around the top with a band of green, alternating with the white of the ribbon, painted on alternate sticks with a gilt and red quiver, and the monogram C. A. The body of the fan is divided in three panels surrounded by rich fret work. The central one is filled with a colored print, "probably by Marchais," of *les joies de la famille*, surrounded by a wreath of roses and a black, silver, mauve, and gold frame. The two side panels contain love trophies, with doves in cameo style in white on a gray ground, surrounded by blue and red with gold arabesques.

21,741. France. Empire. Folding fan, *brisé*, of light tortoise-shell, fretted and inlaid with steel spangles.

21,725. France, 1830. Folding fan with mother-of-pearl sticks, richly fretted and gilded in two golds. One guard ornamented with mirrors mounted in filagree work set with turquoises. The other bears two coats of arms supported by two cupids. Paper leaves, one with scene from the "Huguenots," colored lithographs. Made for the wedding of one of the Marquises Landi of Modena. Purchased in Rome.

21,748. France. Folding fan with pearl sticks, fretted, carved and gilded with rococo figures. Pearl guards, with fire-gilt metal ornaments, each inset with two small colored

enameled plaques with pastoral figures. Swan skin leaf finely painted with pastoral figures in the style of Watteau. Purchased in Madrid.

21,703. France. Folding fan, with fretted sticks of light tortoise shell inlaid with steel spangles, and mahogany guards inlaid with white and green ivory, ebony and fretted mother-of-pearl. Paper leaves, published in honor of Rossini, with illustrations and music from his operas. This fan was purchased in Padua and belonged to an Italian prima donna who had sung in Rossini's operas.

21,724. Italy, 17th century. Fan leaf painted on swan skin. Judgment of Paris.

21,727. Italy, 17th century. Fan leaf of swan skin painted in water-color: Diana and her nymphs judging a hunter who has killed a goose. On the back two cupids shooting at two birds.

21,728. Italy, 17th century. Folding fan with fretted and carved ivory sticks and guards. Leaves of swan skin with pen and ink designs signed "Michael Hier . . . Cossus, Romae." The front leaf represents a feast of Bacchus at a village of the Roman Campagna, with Bacchus in the centre surrounded by woodland divinities, nymphs and satyrs, with background of architectural designs. The back is ornamented with a panel representing a mounted hunter, surrounded by birds and fruit in rich conventional designs.

21,700. Italy, 18th century. Folding fan, *brisé*, of light tortoise-shell, fretted and inlaid with steel spangles and painted with small flowers, two on each stick. Made in Florence or Naples.

21,694. Italy, 18th century. Folding fan, *brisé*, of Manila tortoise-shell, inlaid with steel spangles and encrusted with gold in conventional designs.

21,705. Italy, 18th century. Small tortoise-shell folding fan, *brisé*, with sticks of open work design, in part inlaid with steel and overlaid with gilded silver. Lorgnette in place of button.

21,684. Italy, 18th century. Folding fan with ivory sticks carved, and gilded in two colors, and floral design containing a vignette of a man and woman in rococo costume. Carved and gilded guards. Paper leaf (French) of the first half of the

present century, with lithograph of garden scene, colored in gouache.

21,730. Italy, 18th century. Folding fan with ivory sticks, overlaid with gilding, colors and mother-of-pearl, and carved in open work rococo designs. The guards of carved mother-of-pearl. Modern lace leaf of point d'Alençon, manufactured at the school at Burano. The sticks are probably Florentine.

21,732. Italy. End of 18th century. Folding fan with fretted and carved ivory sticks in three panels, the centre representing Mars and Venus, and the sides a nymph and warrior. Carved guards with similar designs. Vellum leaf, with three panels painted in gouach, representing peasants, on dark red ground decorated with flowers. The painting is attributed to Lochatelli. The back leaf has a picture of a seated Chinaman. With rhine-stone button and original red silk tassel.

21,685. Italy. Period Louis XVI. Folding fan with fretted and carved ivory sticks, richly gilded with Chinese figures. Paper leaf with a modern colored lithograph, in part hand-colored with pictures of queens in seven panels, the centre, Mary Queen of Scots. Made in Venice.

This fan is said to have belonged to a lady of the house of Cornaro, who became a nun, and whose declaration of investiture on illuminated parchment accompanies the fan.

21,710. Italy. Directoire. Folding fan with fretted ivory sticks and guards, inlaid with steel spangles; the guards overlaid with red tinsel. Leaf of pale blue satin embroidered with gold spangles and thread and steel bars. Purchased in Padua.

21,722. Italy. Directoire. Folding fan with dark tortoise-shell sticks, inlaid with gold spangles. Leaf of lavender satin, with gilt tinsel spangles and red and blue imitation jewels. From Perugia.

21,718. Italy. Directoire. Folding fan for promenade, with white bone sticks, fretted and inlaid with silver gilt. Dark blue satin leaf with gold tinsel and spangles. Probably made at Venice.

21,704. Italy. Empire. Folding fan, *brisé*, of light tortoise-shell, fretted and inlaid with steel spangles. From Pisa.

21,707. Italy. Empire. Folding fan with mother-of-pearl sticks, inlaid with steel spangles, and steel harp applied on outside sticks. Tulle leaf, with gilt and cut steel appliqué.

21,714. Italy. Empire. Folding fan with fretted bone sticks, inlaid with gold and steel spangles. Leaf of white gauze, with palms of steel and gold spangles and gold tinsel, and Brussels tulle insertion. From Padua.

21,713. Italy. Empire. Folding fan with mother-of-pearl sticks, inlaid with gold and steel spangles. Leaf of crêpe-lisse and tulle, embroidered in gilt and floss silk, with cut steel spangles.

21,711. Italian. Empire. Folding fan with fretted bone sticks. Guards gilded. Leaf of white satin embroidered with gilt spangles, and upper part of tulle embroidered with span-gled white cotton roses and green chenille leaves, with spangled ground and border. Purchased in Perugia.

21,734. Italy. Empire. Folding fan with cardboard sticks, painted with Chinese figures. Guards of walnut, painted to imitate Japanese lacquer.

21,735. Italy. Empire. Folding fan with red bone sticks, engraved to show design in white. Red gauze leaf embroidered with silver spangles and tinsel.

21,719. Italy. Early 19th century. Folding fan with ivory sticks, inlaid with silver and steel spangles. Leaf of white crêpe, embroidered in silver spangles forming garlands, and steel palms, harps and stars. Belonged to a singer. Purchased in Padua.

21,697. Italy. Folding fan with leaf of oiled paper called "talque," painted with a coach drawn by birds of Paradise, with a butterfly as coachman, and dogs as footmen and passengers. Around the top a gothic colonnade, with knights in armor. Bamboo sticks. A carnival fan used by maskers and the populace.

21,698. Italy. Early 19th century. Folding fan with yellow bamboo sticks painted in gilt and red. Leaf of thin oil-paper (talque) with engraving in centre, colored by hand, representing a garden scene surrounded by arabesques. Purchased in Umbria.

21,702. Italy. First half of 19th century. Folding fan with tortoise-shell sticks, fretted and gilded. Guards half of rosewood, overlaid with plates of fretted and gilded pearl shell. Paper leaf with lithograph, scene from an opera, colored in gouache. Back leaf of swan skin, printed and painted by hand. Print "M. No. 250."

21,699. Italy, about 1828. Folding fan, *brisé*, with light tortoise-shell sticks, and guards inlaid with steel spangles and turquoise beads. Paper leaf with lithograph colored in gouache.

21,721. Italy, 1830-1840. Folding fan with gilded carved wood sticks and guards. Narrow paper leaf with colored lithograph of Apollo and the Muses, and a pastoral scene upon the reverse. These prints were said to have been made in Venice, and are colored in gouache.

21,691. Italy. Florence, 17th century. Ivory wedding fan, *brisé*, with fretted sticks with applied gilt paper ornaments, held together by ribbon at top. Guards carved with flaming heart.

21,701. Italy. Florence, 18th century. Folding fan, *brisé*, of fretted white bone.

21,708. Italy. Florence, 18th century. Folding fan with light tortoise-shell sticks, inlaid with steel and gold spangles. White satin leaf embroidered with bunch of pink roses and gold spangled wheat.

21,726. Italy. Florence, 18th century. Folding fan with sticks of ivory and tortoise-shell alternating, and ivory guards inlaid with tortoise-shell in conventional scrolls. Leaf of swan skin with aquarelle: Angelica and Medora. Back, a lightly-washed seascape.

21,706. Italy. Naples. Folding fan, *brisé*, of tortoise-shell inlaid with steel spangles. Sticks in the form of arrows, with rivet at points and a lorgnette opposite.

21,692. Italy. Rome, 18th century. Folding fan with carved and gilded ivory sticks. The outer guard and half the sticks are painted brown. Leaf of swan skin painted with the Pantheon (before the excavations and restorations) in the centre; the tomb of Cecilia Metella to the left, and the temple of Vesta to the right, all framed in conventional designs. The back, also of swan skin, is painted with flowers and butterflies.

21,687. Italy. Venice, 17th century. Folding fan, *brisé*, with fretted ivory sticks, held together by a ribbon at top. Decorated in three panels; the centre representing a scene in the aviary of a nobleman's villa, and the side panels, Chinese garden scenes. Guards and base of sticks painted in Chinese

style. The reverse bears a landscape in blue and Chinese figures.

21,693. Italy. Venice, 17th century. Folding fan, *brisé*, with fretted ivory sticks, painted on the lower part of the sticks with group of five Chinese figures in colors, gold and silver. Three figures in outline on the back. Guards carved and painted with the figure of a woman looking out of a window.

21,695. Italy. Venice, 18th century. Folding fan, *brisé*, with black lacquered sticks, enameled in gold of two colors and painted on both sides in three panels (landscapes in Japanese style), with conventional border above ribbon.

21,696. Italy. Venice. Folding fan, *brisé*, of light tortoise-shell painted in gold, with birds and floral designs, and in the centre a Chinaman waving flags; a wreath of forget-me-nots around the top.

21,686. Italy. Venice, 18th century. Folding fan with fretted bone sticks. White satin leaf painted in flowers, with a Chinese figure in tinsel, and tinsel bunches of flowers and spangles around the edge. The head of the figure is a colored print, cut out and applied.

21,688. Italy. Venice, 18th century. Folding fan with paper leaf painted with Chinese figures on black ground. Carved ivory sticks and guards with pastoral figures in relief.

21,689. Italy. Venice, 18th century. Wedding fan, folding, with leaf of India muslin embroidered in six conventional bunches of flowers. Ivory sticks inlaid with gold and silver.

21,715. Italy. Venice, 18th century. Folding fan with parchment leaf painted in gouache with warrior asleep, probably intended for Helen of Troy and Paris. Two soldiers in the background. Remounted on Empire sticks of ivory inlaid with gold spangles. Purchased in Friuli.

21,720. Italy. Venice, end of 18th century. Maskers' red fan, folding, with ivory sticks dyed red. Leaf of red satin with gilt tinsel palms, grapes and spangles, appliqué. Used at the time of the carnival. Purchased in Venice.

21,731. Italy. Venice, end of 18th century. Bridal fan, folding, with fretted white ivory sticks, decorated with gilt paillettes. Guards carved, with flaming heart. Narrow leaf of point d'Alençon. From the sale of the property of the Countess Morosini Gattenberg.

21,717. Italy. Venice. Directoire. Folding fan with white bone sticks and ivory guards inlaid with silver gilt. White satin leaf with gilt tinsel appliqué.

21,709. Italy. Venice. Empire. Folding fan with fretted bone sticks inlaid with steel and gilt spangles. Leaf of white silk and white gauze, embroidered with palms of white tambour work and spangles, and with sheaves of wheat, pine cones, laurel-wreaths and hearts.

21,712. Italy. Venice. Empire. Folding fan with fretted ivory sticks inlaid with steel spangles, and white silk leaf embroidered in gilt spangles and open work of tambour lace. Purchased in Padua.

21,733. Italy. Venice. Empire. Folding fan with light tortoise-shell sticks inlaid with steel spangles. Leaf of tulle and light blue satin, with embroidered medallions and steel spangles.

21,723. Italy. Venice, 1830. Bridal fan, folding, with bone sticks, fretted and slightly gilded. Mirrors in brass frame set on both guards. Narrow leaf of tambour muslin, with fine hand embroidery.

21,736. Portugal (?). Gold folding fan, Plate 19, given by Don Miguel di Braganza, King of Portugal (reigned 1828-1834), to his legitimatized daughter, Donna Maria Assunta di Braganza. Parchment leaf with painting in gouache of Apollo and the Nine Muses. The reverse is painted with gold bees, surrounded by a gilt border. The sticks are of chiseled and chased gold. The guards are of gold, inlaid with white Oriental pearls in a conventional design upon a transparent red enameled ground. One stick is ornamented with an enameled rose set in a ring of pearls. By touching a spring in the side of the guard, this opens, disclosing a small watch. In the opposite side of the guard is another spring, which causes a repeater to ring the hours and quarters. The other guard has an oblong enameled panel decorated with a vase of flowers. This opens on touching a spring, disclosing a view of the bay of Lisbon, with a royal castle in the distance and six children playing in the foreground. The children are dancing, and on the panel being opened, a Spanish dance is played by a hidden musical box.

21,747. Spain. Folding fan with mother-of-pearl sticks and blue silk leaf covered with white lace, *point de Madrid*.



PLATE 19. Engraved Gold Fan, 21,736. Portugal (?).

21,651. Spain. Folding fan with painted wooden sticks and paper leaf with lithographed design intended for telling fortunes. A pack of Spanish playing cards is represented, each with a legend, as *no desespares*. The fan is accompanied by a pack of small Spanish cards, made by Simeon Dura, Valencia, and in telling fortunes, a card is drawn, and referred to the fan. The latter also bears the picture of a woman in carnival attire, and the legend "*El secreto del amor*." The fan appears to have been made in Germany.

21,648. England. Folding fan with iridescent pearl sticks inlaid with steel spangles, with parchment leaf painted with designs symbolic of the Queen's Jubilee, 1897. In the centre an imperial crown, and on the right and left the monogram V. R. Garlands and border of gilt spangles.

21,763. England. Fan leaf (framed), designed for Queen's Jubilee, 1897, by F. Houghton. The parchment is painted in three panels: in the centre the Royal Family; on the right, a miniature portrait of Her Majesty, 1897, and on the left, a similar portrait, 1837.

21,646. Syria. Two church fans of silver, length, $9\frac{7}{8}$ inches. Copies of fans used in a Syriac Catholic Church at Jerusalem. One, Plate 20, is ornamented with silver bells, the other plain. Both inscribed on margins *li-dair el-Betharah fi-l-nauk-Karawân*, "To the cloister of El Betharah in Karawân." (Centre) *sanat* 1805, "year 1805." Reverse (margins), *wakf-el-khurt Yohana Habib*, "gift of the priest Johana Habib." (Centre) *fi Adar* 8, eighth day of month of Adar (*i. e.*, March).

These fans are similar to those used in the Greek Church, where they are known as *hexapteric*, "six wings."

21,765. India. Palm leaf fan with curved handle, painted and varnished with flowers in colors.

21,766. India. Leaf-shaped fan of pink silk, with curved handle. Rim and handle covered with silver and blue paper.

21,767. India. Heart-shaped fan of cus grass, with scalloped edge bound with red cloth, ornamented with red and black cloth, and yellow braid, silver thread embroidery, steel spangles, beetle wings and red floss silk. Lacquered wood handle.

21,768. India. Axe-shaped fan of cus grass, with scalloped edge bound with red cloth, and ornamented with red and black

cloth, silver thread embroidery, steel and gilt spangles, beetle wings and red floss silk. Laquered wood handle.

21,655. India. Axe-shaped fan of cus grass, like the preceding except that the edge is not bound.

21,769. India. Leaf-shaped fan of painted mica, edged with colored floss silk. Curved handle; gilded ribs and handle.

21,770. India. Leaf-shaped fan of painted mica, with straight handle. Material like preceding.

21,771. India. Axe-shaped fan of mica, painted with floral designs in white, and edged with floss silk, purple, white, red, green and yellow. Curved handle; ribs and handle gilded.

21,772. India. Axe-shaped fan, similar to the preceding, but smaller.

21,645. Persia. Axe-shaped fan of woven palm leaf, with stick made of mid-rib of palm, known in commerce as a Mecca fan, and said to be made at that place.

21,650. Tunis. Octagonal screen fan, made of colored yarn, with wooden handle.

21,746. Morocco. Square axe-shaped fan of woven palm leaf, with stick made of mid-rib of palm.

21,647. Mexico. Fire fan, *soplador*, round, made of woven sedge leaves, stained green and red and plain.

21,745. Paraguay. Asuncion. Fan leaf of silk lace.

21,640-41. Micmac Indians. Digby, Nova Scotia. Circular split fans, one white with yellow splints, and the other green, with drab, $7\frac{1}{2}$ and 11 inches in diameter.

Mr. A. S. Gatschet, who collected these fans, states they were obtained from James Meuse, "Chief of the Western Counties Indians of Nova Scotia."

Mr. Gatschet writes: "It seems that the fans here are all made with flexible handles, which makes them less useful than those with straight or stiff handles made by the Quoddies." He gives the following vocabulary of Micmac terms:

Newigwedóshudi, fan.

nin newigwedó, I am fanning.

nin newigwedék méwan, I fan somebody.

nin newigwedósi, I fan myself.

pidegómkasik áptchun, a long handle.

tegwaxthitchk áptchun, a short handle.



PLATE 20. Church Fan. Syria, 21,646.

The materials of which the fans are made by these Indians are: splints of the

wisxók, pl. *wisxók*, black ash.

axémok, pl. *axémók*, white ash; snow-shoes are made of the same wood.

tchóxtchi musí, white maple.

newigwedóshudi wedshidastk wisxók abi, a fan made of black ash-splints (*abi* = splint, stick).

21,762. Micmac Indians. Canada. Circular glass and splint fan, 11 inches in diameter. Body made of fragrant grass and border of yellow stained splints.

Games. A set of implements (21,642) for the Micmac dice game, *allestá-an*, has been presented by Dr. A. S. Gatschet. They consist of six bone dice, marked on the flat sides as shown



Fig. 69.—Dice for *allestá-an*. Diameter, $\frac{11}{16}$ inches. 21,642.
Micmac Indians, Nova Scotia..

in Fig. 69, and contained in a small velvet bag; a flat wooden dish, Fig. 70, $10\frac{1}{2}$ inches in diameter, marked on both top and bottom with incised lines, figures 1 and 55 counting sticks of bamboo, 51 plain and 4 notched as described below, Fig. 71. Collected by Dr. Gatschet from James Meuse, Chief of the Western Counties Indians of Nova Scotia. Meuse claimed that the dish was 300 years old, and though this is an exaggeration, one can see clearly that it is of ancient manufacture.

Dr. Gatschet has furnished the following account of the game:

The dice, *allestá-an*, in the plural *allestá-ank*, are disk-shaped, flat above and convex below, six in number. They always make them of white bone and since the cariboo furnishes the hardest bone, they use the bone of this animal only for the purpose. The cariboo is still frequent in the woods of Nova Scotia and New Brunswick and is called so, *xalibá'*, in Quoddy megali'p, from its habit of shoveling the snow with its

forelegs, which is done to find the food (grass) covered by the snow. *χalibá' mulχadéget* (Micmac) "the cariboo is scratching or shoveling." The bone dice are made smooth by rubbing them on a stone=*subigidá-an*, whetstone, honing stone; *subigideget*, any object whetted or honed.

The dish or *wáltes* is a heavy platter made of a piece of rock maple or *sná-u* (*snáñ*)=wood, and appears to have no other purpose than to jerk the *allestá-ank* up and receive them when falling back. This is done

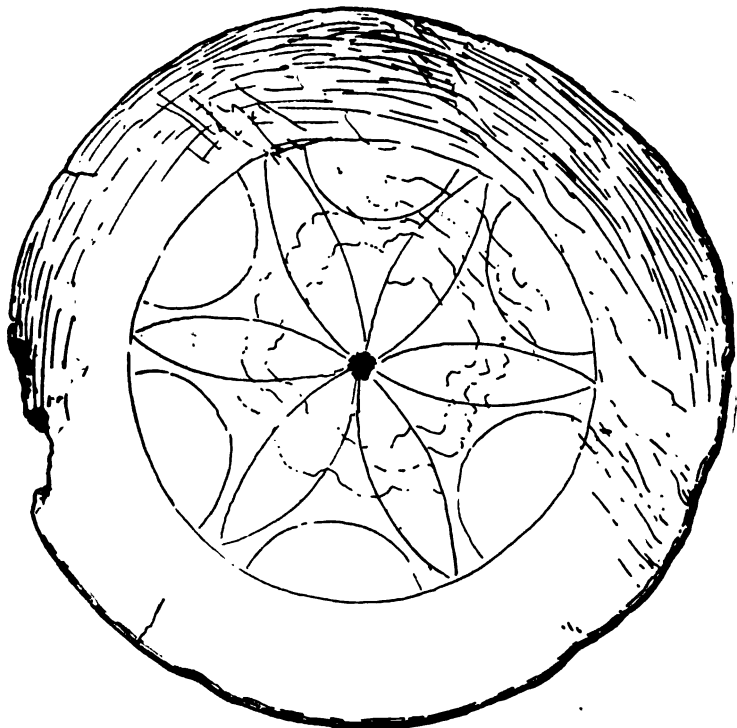


Fig. 70.—Bowl for *allestá-an*. (Obverse.) Diameter, 10½ inches. 21,642.
Micmac Indians, Nova Scotia.

either by striking the dish upon a table, or on a mat lying upon the ground. The rock maple tree is still found in all hardwood ridges of Nova Scotia, and where this useful tree is getting scarce the Nova Scotia white people begin to rear it, as they do also with the *niməndəken* or yellow birch, the *axamúχ* or white ash, the *wisχók* or black ash, the *midí* or common poplar. When the dish is made of birch bark, it is called *ulá'n*, plural *ulánəl*. The Micmacs make birch bark canoes for navigating the Annapolis basin, just as in ancient times, and the price they now get for them is \$15.00 to \$25.00.

The *wálles* sent to you is made from a piece of rock maple about one-half inch thick, diameter about one foot, and wholly carved with a knife, no machinery having been used. The top side is slightly concave and the bottom conspicuously convex. As the biggest rock maple trees do not exceed twenty inches in thickness, the *wálles* was evidently made from one side of the tree, and not from across. The wood is cross-grained and extremely smooth, the nerves (*opχόχt*) of the tree being just perceptible. Round and elliptic figures are carved on the top and bottom side, but have no significance for the game itself. The rubbing smooth or polishing of the wood is called *sesubadōχ* by the Indians; it has the same effect as sandpaper rubbing with us.

The *allestá-ank* or dice are blank on the convex side and carved with figures on the flat side, which converge in the centre. The game itself is *allestat*; they (two) play the dice game: *allestáyeκ*; they (more than two) play the dice game: *allestádiyeκ*.

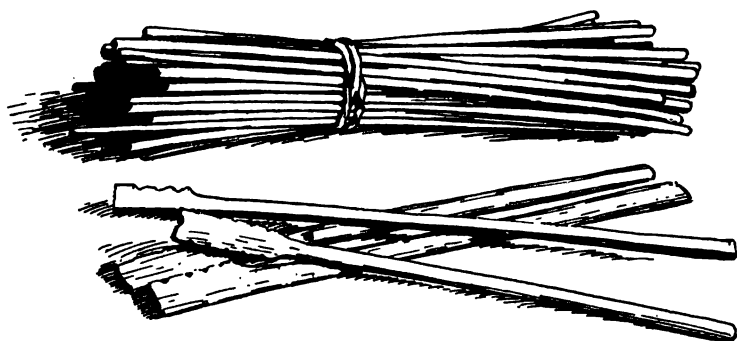


Fig. 71.—Counting sticks for *allestat'-an*. Length, $9\frac{1}{4}$ inches. 21,642.
Micmac Indians, Nova-Scotia.

The counters of this game are of two kinds, both being sticks about seven to eight inches in length.

(1) *tχamuawet*, flat sticks, with a broadening at one end. (2) *kidema-an*, thin, cylindric sticks, about double the thickness of lucifer matches.

The *tχamuawet*, plural (*ē*) *tχamuawet*, slender sticks, are also called "five pointers" because their broadening end shows five notches or points, showing their value as counters, each representing five *kidemá-ank*. The ones sent you are made of bamboo obtained from the West Indies, hence called *kesúsk*, plural *kesuskel*. On one of the *tχamuawet* the end has a double set of notches, the whole resembling a diminutive arrow. It is called the old man: *gisigú*, plural *gisigúk*. With this last one *tχamuawet* are to the number of four. At the final accounting each of the *tχ.* counts five points, and it is the privilege of the one who gets the old man to get five points more than the others, under the condition that his previous gains exceed fifteen points.

The *kidemá-ank* or "common counters" are fifty-one in number, cylin-

dric and same length as the *t̄xamuawēl*. Some of those before you are of *snaū* or rock maple, the others of bamboo. Their number is determined by the fact that three times seventeen makes fifty-one, and each three of them represented one point in the game.

Some of the rules observed in this truly aboriginal game are as follows, according to James Meuse:

Any player in the ring can have three throws of the dice.

When, after shaking the *wālles* on a table or on the mat, all the dice or *alteslā-ank* turn their white or black side up, the player gets one *t̄xamuawēl*, or five points, or fifteen *kidemā-ank*.

When, after the shake, two *alteslā-ank* turn their marked side up, the player gets no counter or *kidemā-an*.

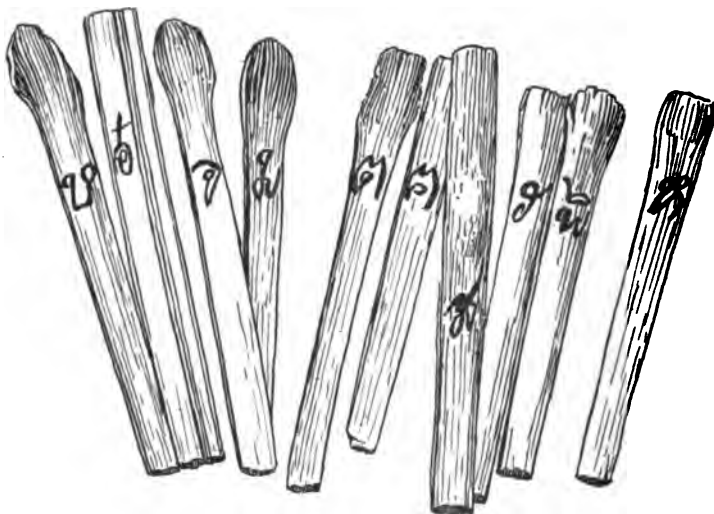


Fig. 73.—Siamese gambling lots. Length, 5 inches. 21,622.

When one *alteslā-an* turns up with the marked side up, the player gets one point or three *kidemā-ank*.

When five dice turn their marked side up, and one the blank side, the player makes one point or three *kidemā-ank*.

When the player finds all the six dice with the marked side up, he wins fifteen counters or five points.

When five marked sides turn up and one black one he makes one point or three counters. But when he makes the same throw again in succession to the above, he wins three points or nine counters.

Whenever a player has all the blanks turned up, he has the privilege of throwing again.

Two Siamese rattan footballs (21,660) have been presented by Prof. Maxwell Sommerville.

Ten Siamese bamboo lots (21,622), Fig 73, from the Wat Prah-Keoh, Bankock, have been presented by the collector, Dr. H. M. Hiller. Dr. Hiller states that there is a little hillock seven or eight feet high from which grows a tree, under the boughs of which is a phallus. This object consists of stone about three feet in height, so carved as to admit of no question as to its identity. Upon the back of the stone is a woman's face, with hair gilded. In front of the phallus is a tin can containing some twenty-five slips of bamboo, five inches in length, each marked in ink with a Siamese letter. The slips are used by Chinese before playing the lottery.

A box of German jackstraws (21,740) have been presented by Miss Charlotte Grosse.

Two wire puzzles (21,662-63) have been presented by Mr. David Rinker.

A wire puzzle (21,658) and the Katzenjammer puzzle (four wooden cubes, 21,659) have been received from Mr. Charles Este, Jr.

Mrs. William Frishmuth has presented a rectangular Japanese humming kite (21,737) *Yakko unari*, having bowed ends and split bamboo cords, and two so-called Chinese musical kites (21,738-39), in the form of butterflies.

An Indian doll (21,653) on snowshoes, made by the Caughnawaga Indians near Montreal, and a cornhusk doll (21,661) from New York State have been presented by Mrs. Laura B. Starr.

Musical Instruments.—A collection of instruments from all countries, comprising about 1,100 specimens, have been presented by Mrs. William Frishmuth, and are now arranged in cases in the Museum, where with the fans they fill one entire hall. A detailed catalogue of the collection will be printed in a forthcoming BULLETIN.

Numismatics.—Nine coins of El Mahdi inscribed with his sign manual and on the reverse in Arabic, *duriba pt Omdurman*, "struck in Omdurman" and the date (1310-1312) A. H. (1892-1894) have been presented by Dr. S. Weir Mitchell. Five of the coins, size, 10, 11, are roughly struck in copper and bear the numeral "12;" three, size 6, are copper silvered and bear the numeral 11.

LIBRARY.

The following are among the most important acquisitions since the last issue of the BULLETIN :

Códice Cospiano. Manuscrito pictórico de los Antiguos Náhuas que se conserva en la Biblioteca de la Universidad de Bolonia Reproducido en foto cromografía á expensas de S. E. el Duque de Loubat. Rome, 1898.

Codex Telleriano-Remensis. Manuscrit Mexicaine, reproduit en photochromographie aux frais du Duc du Loubat et précède d'une introduction par le Dr. E.-T. Hamy. Paris, 1899.

Décades Americanae. Mémoires d'archéologie et d'ethnographie Américaines par le Dr. E.-T. Hamy. 3^e & 4^e décades. Paris.

Gifts of the *Duc de Loubat*.

Anthropologische Studien über die Urbewohner Brasiliens von Dr. Paul Ehrenreich. Braunschweig, 1897.

Beiträge zur Völkerkunde Brasiliens von Dr. P. Ehrenreich. Berlin 1891. Veröffentlichungen aus dem Königlichen Museum für Völkerkunde. II. Band, 1.-2. Heft.

Gifts of the *Author*.

Publicationen aus dem Königlichen Museum in Dresden, Band XI. Bronzepauken aus Südost-Asien von Dr. A. B. Meyer und Dr. W. Foy. Dresden, 1897.

Band XII. W. Foy: Schwerter von der Célebes See. Dresden, 1899.

Gifts of *Dr. A. B. Meyer*.

Veröffentlichungen aus dem Königlichen Museum für Völkerkunde. VI Band, 2.-4. Heft. Edward Seler. Alt mexikanische Studien II. Berlin, 1899.

Gift of the *Museum*.

Certain Aboriginal Remains of the Alabama River, by Clarence B. Moore. Philadelphia, 1899.

Gift of the *Author*.

Anales del Museo Nacional de Buenos Aires. Tomos iv, v, vi. Buenos Aires. Gift of the *Museum*.

Fauna Hawaiiensis, Vol. I. Parts I. and 2.

Memoirs of the Bernice Pauahi Bishop Museum of Polynesian Ethnology, Vol I. No. 1. Hawaian feather work. By William T. Brigham. Honolulu, 1899.

Gifts of the *Bernice Pauahi Bishop Museum*, Honolulu.

Bergens Museum, Aarbog, for 1898. Bergen, 1899.

Transactions of the Kansas State Historical Society, 1886-1888, 1889-1896. Topeka, 1890, 1896. Gift of the Society.

Transactions of the Wagner Free Institute of Science of Philadelphia. Vols. 1, 3, 4. Philadelphia, 1887-1898. Gift of the Institute.

Professor Maxwell Sommerville has presented the following works on Costume :

Petite Galerie Dramatique ou Recueil de différens Costumes d'Acteurs des Théâtres de la Capitale. A Paris. Chez Martinet, Éditeur. Tomes 1-13. (1,637 colored plates of theatrical costumes.)

Plates from the Journal des Dames et des Modes. Paris. Mésangère, Éditeur, 1797-1830. Bound in 12 volumes. (2,851 colored fashion plates.)

Professor Sommerville has also presented the following colored prints of Costumes:

By Watteau, 3 plates.

By Watteau Fils, 32 plates.

By St. Aubin, 9 plates.

By Le Clerc, 52 plates.

By Desrais, 34 plates.

By Leveillé, 1 plate.

By Bosio, 6 plates and 1 original sketch.

By Fanche, 1 plate.

Collection Basset (various artists), 40 plates.

Signature lacking, 2 plates.

Coiffeurs, 23 plates.

Modes et Manières du Jour. Nos. 1-51, lacking 29, 31, 36, 48, 50. 46 plates.

Spanish Costumes, Nos. 9-112, 104 plates.

Jeu de Société, 2 plates.

Le Suprême Bon Ton, Nos. 1-27, 30 plates.

Musée Grotesque, Nos. 1-54; 56-64, 65 plates.

Le Bon Genre, Nos. 1-121 and 102 duplicates, 223 plates.

Monsieur et Madame Denis, 9 plates.

- Caricatures Parisiennes, 20 plates.
 Caricature Villageoise, 2 plates.
 La Vaccine, 5 plates.
 Miscellaneous, 49 plates.
 View of Old Paris, La Samaritaine sur le Pont-Neuf à Paris.
 All of the above are colored by hand.
 Types Militaires (lithograph), 2 plates.
 Bains Publics, 2 plates.
 Caricatures, by Lavrate (printed in colors), 35 plates.
 German Costumes, 2 plates.
 Costumes published in Italy (Florence?), 5 plates.
 English Caricatures, 3 plates.
 Russian Costumes in gouache, 3 plates.
 The above may be inspected by application to the Librarian.
 A Dictionary of the Suahili Language. By the Rev. Dr. L. Krapf. London, 1882.
 Fans of Japan. By Charlotte M. Salwey. London, 1894.
 Elements of South-Indian Paleography. By A. C. Burnell. London, 1878.
 Artistic Japan. By S. Bing. London.

EXCHANGES.

An exchange of publications has been made with the following institutions since the last issue :

- Museo Nacional de Buenos Aires.
 Bergens Museum, Bergen, Norway.
 Anthropological Society, Tokyo, Japan.
 Australian Museum, Sydney, New South Wales.
 Public Museum, Wanganui, New Zealand.
 Penzance Natural History and Antiquarian Society.
 Wagner Free Institute of Science of Philadelphia.
 Carnegie Museum. Pittsburg.
 Cincinnati Museum Association.

In Memoriam.

DANIEL G. BRINTON, M. D., LL. D., Sc. D.

DR. DANIEL G. BRINTON, Vice-President of the Department of Archæology and Paleontology of the University of Pennsylvania, died at Atlantic City, New Jersey, July 31, 1900, in the sixty-fourth year of his age. Dr. Brinton was made Professor of American Archæology and Linguistics in the University, November 2, 1886.

He was an active mover in the creation of the existing Department of Archæology and Free Museum of Science and Art, having participated in the initial meeting October 23, 1889, and been appointed Director of American Exploration of the Special Committee of the Archæological Commission of the University of Pennsylvania for American Archæology in the early part of 1890. In November, 1890, at its first annual meeting, he was elected President of the University Archæological Association, holding this position until 1893. He was Vice-President of the Association for 1893, and 1896, and Chairman of the American Section of the Department of Archæology and Paleontology, 1893, 1894. Upon the installation of the collections in 1890, he deposited in the Museum his large collection of prehistoric American antiquities, chiefly from Ohio, comprising 1,254 catalogue entries (Nos. 4,369-5,506). These objects have since become the property of the Department as a gift from Mrs. Brinton. In the spring before his death, he presented his valuable library of American Linguistics to the University of Pennsylvania. His books have been delivered to the University, and by an arrangement with the Provost and Trustees have been transferred to the Museum, and placed in the Elkins library, where they are now being arranged and catalogued, and where they will be accessible to students. The library includes the Berendt linguistic collection comprising the manuscript material collected by Dr. Karl Hermann Berendt. Of this the most important work is a copy of the Maya Dictionary, known as the *Dictionario de Motul*, written

by a Franciscan friar, living in the convent of Motul in or about 1577. To the original manuscript Dr. Berendt has added some 600 pages of additions and corrections. In his catalogue of the Berendt collection, Dr. Brinton wrote, "If the Maya hieroglyphs are ever deciphered it must be through the language as presented in this dictionary." Some time before his death Dr. Brinton made an arrangement with the Bureau of American Ethnology at Washington for the publication of this important work. This arrangement has since been revived and ratified by the Bureau and the Trustees of the University, and the publication of the Dictionary will shortly be undertaken by the Bureau. Dr. Brinton had made an annotated catalogue of the Berendt library which remained in manuscript. This catalogue will be published in the next issue of the Bulletin. It would be difficult to enumerate all of Dr. Brinton's services to the Museum. He was always ready to give advice with reference to the direction of its scientific work; he frequently lectured in the popular courses given in the Museum, and contributed papers which were published in this Bulletin. In him we have lost one of the most valued and useful members of our organization, and the world of science one of its brightest ornaments.

S. C.

UNIVERSITY ARCHÆOLOGICAL ASSOCIATION.

At a special meeting of the University Archæological Association, held on the twenty-eighth of June, 1899, it was agreed that the University Archæological Association and the Department of Archæology and Paleontology of the University of Pennsylvania be merged, and that the said Association be known hereafter as the Department of Archæology and Paleontology of the University of Pennsylvania.

The honorary, corresponding and contributing members of the Association are constituted honorary, corresponding and contributing members of the department.

Persons making an annual payment of five dollars per year, may become Contributing Members or, upon payment of \$200, Life Members of the Department. Such members are entitled to receive the Bulletin published by the Department in which the museum acquisitions are illustrated and described, to receive invitations to all public lectures given under its auspices, and to make such use of its Library and Collections as may conform with the rules of the Museum. The Museum is open week days, other than holidays, between ten and five o'clock, and on Sundays from two to five. Applications for membership may be addressed to

THE SECRETARY OF THE COMMITTEE ON MEMBERSHIP,

Free Museum of Science and Art, University of Pennsylvania.

**RECEIVED,
JUL 18 1900
PEABODY MUSEUM.**

RECEIVED,
JUL 18 1900
PEABODY MUSEUM.



KARL, HERMAN BERENDT.

PLATE 21.

f

final

BULLETIN

OF THE

Free Museum of Science and Art

OF THE

UNIVERSITY OF PENNSYLVANIA.

VOL. II. PHILADELPHIA, MAY, 1900. No. 4.

+ CATALOGUE OF THE BERENDT LINGUISTIC
COLLECTION.*

(Now in the Library of the Free Museum of Science and Art, University of
Pennsylvania)

BY DANIEL GARRISON BRINTON, M. D.
Media, Pa., 1884.

INDEX.

PAGE	PAGE
Cakchiquel 30	Languages of Honduras 62
Chaneabal 50	Languages of Nicaragua 67
Chiapaneca 58	Languages of Panama 75
Chinanteca 51	Mam 45
Cholti 44	Maya 1
Chontal 61	Miscellaneous 79
Costa Rica, Languages of 72	Mixe 52
Darien, " " 75	Nicaragua, Languages of 67
Guatemala, " " 66	Panama, " " 75
Honduras, " " 62	Pocomam 46
Huasteca 43	Pocomchi 36
Huave 60	Popoluca 61
Ixil 47	Tzendal 48
Kakchi 39	Tzutuhil 30
Kichi 30	Zapoteca 53
Languages of Costa Rica 72	Zoque 55
Languages of Darien 75	Zotzil 49
Languages of Guatemala 66	

* This catalogue was prepared with the same care which characterized all of Dr. Brinton's work, whether intended for the public or private eye. It is published as he left it.

MAYA.

The language of the natives of Yucatan.

As Dr. Berendt* had in his collection three different manuscript dictionaries of the Maya language, all anonymous, for convenience of reference he designated them from the respective localities where he believed each had been compiled. Thus one is named the *Diccionario de Motul*, from the town and former convent of Motul, about thirty miles (eight leagues) east-north-east of Merida; the second the *Diccionario de Ticul* from the village of that name about forty miles south of Merida; and the third the *Diccionario de San Francisco*, from the former convent of that order which was in the city of Merida. These designations will be adhered to in the present catalogue.

1. *Diccionario de Motul*.—Diccionario | de la Lengua | Maya de Yucatan. | [Tomo I.] Maya-Español. | 4°. pp. viii, 1565. Tomo II. Espanol-Maya. 4°. pp. 508. Tomo III. Adiciones y Correcturas. Unpaged; about 600 pp.

Manuscript. This vast work, covering more than 2500 large quarto pages, is by far the most complete dictionary of the

* Dr. Carl Hermann Berendt was born in Danzig in 1817. He studied at the University of Königsberg, where he graduated in medicine in 1842. The following year he began practice in Breslau, where he was also *Privat-Docent* in the University. He took an active part on the Constitutional side in the political troubles of 1848-49, leading to his removal to America in 1851. Landing in New York he proceeded to Nicaragua, where he remained two years, becoming deeply interested in the ethnology, geography and natural history of that portion of the continent. Two years later he moved to Orizaba, Mexico, and again, after two years, to Vera Cruz, where he made his home from 1855 to 1862. From Vera Cruz he went to Tobasco, whence, in 1863, he departed for the United States, and passed most of 1864 in Providence, R. I., copying manuscripts in the John Carter Brown Library. In 1866 at the request of the Smithsonian Institution, he undertook a journey to Penten in Yucatan, returning the following year. Again in February and March, 1869, he explored the vast ruins of the ancient city of Centla. The greater part of 1871 and 1872 he lived in New York, where Dr. Brinton met him.

In 1874 he settled in Coban, Vera Paz, partly to study the dialects of the Maya spoken in that district. This was interrupted by a visit to the United States, when Dr. Brinton saw him for the last time. He died at Coban, May 12, 1878. (See Memoir of Dr. Carl Hermann Berendt. By D. G. Brinton, M. D. Proceedings of the American Antiquarian Society, 1884.)

Maya tongue known to be in existence. Its history is as follows: While in the city of Mexico in 185-, the Abbé Brasseur picked up at a book stall for three dollars a small 4°. ms. dictionary in two volumes, written in a very small and not very legible hand. Subsequently he sold this to the late Mr. John Carter Brown of Providence, in whose library it now is. In 1864 Dr. Berendt obtained permission to make a copy of it, to which task he devoted about one year, and in all his later studies of the language added to and emended the vocabulary, but always using a different colored ink, so that the exact text of the original should not be interfered with. Such is the work as it now is.

Its peculiar importance rests on the fact that it gives us the Maya tongue as it was in the century of the conquest; for remarks by the author show him to have been a Franciscan friar living in the convent of Motul in or about 1577, as he speaks of having seen the comet of that year. If the Maya hieroglyphics are ever deciphered it must be through the language as presented in this dictionary.

The copy in the Brown Library was written probably at the close of the sixteenth century, and by a scribe not well versed in Maya and a careless copyist. Hence very many errors are in that copy which have been corrected in the present one, with infinite pains, by Dr. Berendt. The Spanish-Maya portion is by a different hand and is probably of later date.

2. *Diccionario de Ticul.* Diccionario Español-Maya. 4°. pp. 268. Diccionario Maya-Español. 4°. pp. 241. Bound in one volume.

Manuscript. In 1836 the cura of Ticul, Don Estanislao Carrillo, found among the baptismal archives of his parish a manuscript of 154 leaves with the title *Vocabulario de la lengua Maya q.e comienza en romance, compuesto de varios autores de esta lengua.* It bore as the date of completion Jan. 26, 1690. He presented it to his friend, Don Juan Pio Perez, the distinguished Yucatecan linguist. The latter copied it, after which the original, not being cared for, was lost. In 1847 he made another copy, and either gave away or otherwise disposed of that of 1836. From that of 1847, the present one was made by Dr. Berendt in Merida in 1870, with the utmost care.

3. *Diccionario de San Francisco.* 2 vols. 4°. Tomo I. Dic-

cionario Maya-Español del Convento de San Francisco en Mérida. pp. vii, 364. Tomo II. Diccionario Español-Maya del Convento de San Francisco en Mérida. pp. 386.

Manuscript. According to the most skilful Maya scholars, this Dictionary was composed in the 17th century, and is older than that of Ticul. When, in 1820, the Franciscan convent of Merida was closed, the original mss. was presented to a citizen of Mérida, and passed through various hands until it reached those of Don Juan Pio Perez. He made a faithful copy of it, from which the present one was taken in 1870 by Dr. Berendt. The original could nowhere be found at that date, nor is there any intimation who the author was, nor the exact date of his labors.

4. Pio Perez, (D. Juan). Diccionario de la Lengua Maya. *Merida de Yucatan. Imprenta literaria de Juan F. Molina Solis.* 1866-1877. 1 vol. 4°. 2 cols. pp. x, xx, 437.

This monument of life-long labor did not appear until some years after the author's death (March 6, 1859.) The printing was begun in 1866, interrupted in 1867 by the civil war, during which the manuscript "copy" came near destruction, and finally completed in 1877. Although Pio Perez was considered a thorough Maya scholar, errors are not infrequent in his dictionary owing to faulty orthography or typography. Berendt points out *eche* for *ecbe*, *bich* for *abich*, etc., but on the whole his corrections are few. Perez left his manuscript incomplete, ceasing at the word *ulchahal*. The remainder was prepared by Don Crescencio Carrillo down to *xen*, and from that word to the end by Dr. Berendt. In fullness Perez's Dictionary is much inferior to the Diccionario de Motul. Thus, under the letter A Perez gives 586 words, and the Motul 2059, and about this proportion is maintained throughout.

5. (Pio Perez, Don Juan.) *Apuntes del Diccionario de la Lengua Maya*, compuestos en vista de varios catálogos antiguos de sus Voces y aumentado con gram suma de las de uso comun, y otras que se han extractado de manuscritos antiguos. Por un yucateco aficionado á la lengua, J. P. P. 4°. pp. 4, prologo, 468, 8 leaves, appendix.

Manuscript, original. This mss., written in two columns, in a fine clear hand by the celebrated Yucatecan linguist, was presented by his niece to Dr. Berendt, and is that referred to in his

essay *Los Trabajos Lingüísticos de Don Juan Pío Perez*, p. 5. The prologo is signed in full by Perez, but no date is given. It probably was written about 1845.

6. Brasseur de Bourbourg (Abbé E. Charles). *Vocabulaire Général Maya-Français et Espagnol*. Paris, 1870.

This Vocabulary forms the Third Part of the Abbé's *Etudes sur le Système Graphique et la Langue des Mayas*. It covers 340 large quarto pp. and contains about 8000 articles. The Abbé, however, had an extremely superficial knowledge of the Maya, and this vocabulary is often made up from untrustworthy sources, while the derivations suggested are merely absurd.

7. Brasseur de Bourbourg (Abbé E. Charles). *Vocabulaire Maya Français d'après divers auteurs anciens et modernes*. Paris, 1864.

With this title the Abbé gives a vocabulary at the close of Landa's *Relation des Choses de Yucatan* (No. 183). Dr. Berendt has carefully annotated his copy, and shows that the vocabulary is utterly worthless, nearly half the words being erroneous either in orthography or rendering.

8. Buenaventura (R. P. Fr. Gabriel de San). *Arte de la Lengua Maya*. Año de 1684. pp. 163. 12°. *En Mexico*.

A *manuscript* copy of this rare work, the first printed Grammar of the Maya, with fac-simile title page, and a carefully prepared index, by Dr. Berendt.

9. Beltran de Santa Rosa Maria (R. P. F. Pedro). *Arte de el Idioma Maya reducido a sucintas Reglas y Semi lexicon Yucateco*. *En Mexico*. Año de 1746. 12°. 7 prelim. leaves. pp. 180. Title and several pages in fac-simile; the last 8 pp. missing.

Even in such imperfect copies, the first edition of Beltran's *Arte* is almost unknown to bibliophiles. Brasseur possessed no copy of it, and gives its date erroneously as 1742. Beltran corrected the errors in most of the copies with a pen.

10. Beltran de Santa Rosa Maria (R. P. F. Pedro). *Ibid*. Segunda Edicion. Merida de Yucatan, 1859. pp. xviii, 242. 8°.

Two copies, one large paper, uncut, with Beltran's original corrections carefully noted with a pen on the margin; the other with elaborate mss. index by Dr. Berendt.

11. Pío Perez (Don Juan). *Apuntes para una Gramática*

Maya. Copia de los Fragmentos en poder de D. Pedro Regil. Merida. 1868. 12°. pp. 92.

Manuscript, copied by Dr. Berendt from the notes of Señor Perez.

12. Berendt (Dr. C. H.). *Notas Gramaticales sobre la Lengua Maya de Yucatan*. Providence, 1864. 4°.

Manuscript, incomplete. Contains about 40 written pages.

13. Ruz (P. Fr. Joaquin). *Gramatica Yucateca formada para la Instruccion de los Indigenas, sobre el Compendio de D. Diego Narciso Herranz y Quiros. Merida de Yucatan*. Por Rafael Pedrera. 1844. 24°. pp 119.

This is almost a verbal translation in Maya of the *Compendio Mayor de Gramática Castellana para uso de los Niños que concurren à las Escuelas* by Herranz, first published at Madrid in 1834. A copy of this *Compendio*, 9th edition, Madrid 1858, is also in the Berendt collection. Father Ruz used his utmost endeavors to destroy the individuality of the Maya tongue and to reduce it to the forms of Aryan tongues.

14. Kingdon (John). A Yucatan Grammar translated from the Spanish into Maya and abridged for the instruction of the native Indians by the Rev. J. Ruz of Merida. Translated from the Maya into English by John Kingdon, Baptist Missionary, Belize, Honduras. Belize. Printed at the Baptist Mission Press. 1847. Copy and annotations by Dr. C. H. Berendt. New York. 1865. 12°.

Manuscript. In a preliminary note Dr. Berendt points out that Kingdon mistranslates Ruz's title, *Gramatica Yucateca*, which does not mean "a Yucatan Grammar," but a grammar of the Yucatecan language. He adds: "It seems that Father Kingdon had only an imperfect knowledge of either Maya or Spanish. We arrive at that conclusion in view of the many blunders made in his translation, for which see my notes."

15. Rosny (Léon de). *L'Interpretation des anciens Textes Mayas. Suivie d'un Aperçu de la Grammaire Maya*. A Paris 1875. 8vo. pp. 70. Only 85 copies printed.

Unfortunately a very incorrect linguistic essay founded on Brasseur's superficial works. Appended is a *Vocabulaire Maya Français*, in the first five pages of which Dr. Berendt notes 135 errors!

16. Brasseur de Bourbourg (Abbé E. C.) *Grammaire et Chrestomathie de la langue Maya*. Paris. 1870.

This is found in the second volume of the *Mission Scientifique au Mexique et dans l'Amérique Centrale*. It is built chiefly on a hasty study of Beltran de Santa Rosa (No. 9). It is not reliable, but certainly is better than his *Esquisse d'une Grammaire de la Langue Maya d'après celles de Beltran et de Ruz*, appended to Landa, *Relation des choses de Yucatan* (No. 183). This is inexcusably inaccurate, and the Abbé explained to Dr. Berendt that when he wrote it he had never seen the original works of either Beltran or Ruz, but only Gallatin's reference to the former and Kingdon's translation of the latter.

17. Ruz (el R. P. Fray Joaquin). Analisis del Idioma Yucateco al Castellano. Merida de Yucatan. Impreso por Mariano Guzman. 1851. 24°. pp. 16.

This is a word-for-word translation of two articles of the Roman Catechism into Maya.

18. Henderson (Alexander). The Maia Primer. Birmingham. Printed by Showell (no date, 1852). 12°. pp. 12.

The author was a Baptist missionary at Belize, Honduras, and the author of works on the Mosquito language. The Maya he was accustomed to was a debased dialect of the tongue.

19. Ruz (el R. P. Fr. Joaquin). Cartilla ó Silabario de Lengua Maya, para la Enseñanza de los Niños indigenas. Merida de Yucatan. Por Rafael Pedrera. 1845. 24°. pp. 16. Two copies.

20. Berendt, (C. H.). Cartilla en Lengua Maya para la enseñanza de los Niños Indigenas, por C. H. B. Merida, 1871. Por J. D. Espinosa é Hijos. pp. 14. Four copies, one corrected.

This is a second edition of Ruz's *Cartilla* revised and edited by Dr. Berendt at the request of the publishers.

21. Beltran de Santa Rosa (R. P. Fr. Pedro). Novena de Christo crucificado con otras oraciones en Lengua Maya. Mexico, en la Imprenta de D. Francisco Xavier Sanchez Año de 1740.

Manuscript, copy, pp. 105, 12°, from the only copy known, in possession of Don Pedro Regil y Peon, Merida.

22. Beltran de Santa Rosa (R. P. Fr. Pedro). Declaracion de la Doctrina Cristiana en el Idioma Yucateco, Merida, 1866. pp. 23. 24°.

This is really the fifth edition of this work, though it is not so stated by the publisher. It is the ordinary and approved

text for instructing the Indians in their religious duties. The editions are:

1st Mexico, 1740. No copy known.

2nd Mexico, 1757. Only one copy known.

3rd Merida, 1816.

4th Merida, 1860. (*Dr. Berendt, mss. notes to Icazbalceta's APUNTES.*)

23. Dominguez (Doctor D. Francisco Eugenio). *Platicas de los principales Misterios de Nuestra S^{ta}. Fee. Con una breve exortacion al fin del modo con que deben excitarse al dolor de las culpas. Hechas en el Idioma Yucateco. Impresas en Mexico en la imprenta del Real, y mas Antiguo Colegio de S. Ildefonso, Año de 1758.* 6 unnumbered leaves, pp. 24, one unnumbered leaf. 8°.

A very clean and perfect copy of this extremely scarce work, not known to Icazbalceta or Pimental, but highly esteemed by Maya scholars for the purity of its language and the correctness of its style (See Carrillo, *Historia de la Lengua Maya*, § xvi).

24. Acosta (D. José Antonio). *Oraciones Devotas que comprenden los Actos de Fe, Esperanza, Caridad, Afectos para un Cristiano, etc. en Idioma Yucateco. Merida de Yucatan. Imprenta a cargo de Mariano Guzman, 1851.* 8vo. pp. 16. Two copies.

Acosta was a native of Yucatan and cura of Mocoehá about 1812. He is considered a graceful writer in Maya. The work is printed in two columns, Spanish and Maya.

25. Nolasco de los Reyes, (Don Pedro). *El Ejercicio del Santa Via crucis puesto en Lengua Maya y copiado de un antiguo Manuscrito. Merida, 1869.* pp. 31. 24°.

The name of the author of this devotional work is given as above in accordance with the suggestion of Crescencio Carrillo (*Hist. de la Lengua Maya*, § xxi). If this is correct, it must have been written about 1820-25.

26. *Modo de Confesar en Lengua Maya. Año de 1803.* 8°. 2 columns, 38 leaves.

Manuscript, original; written in a clear, small hand, Spanish in one column, Maya in the other. The name of the author is carefully blotted on the first page and is illegible. The questions and answers extend over a wide variety of topics, and form a valuable means of studying the language. The mss. was obtained in Campeche by Dr. Berendt.

27. Ruz (P. Fray Joaquin). Coleccion de Sermones para los Domingos de todo el Año y Cuaresma, tomados de varios autores y traducidos libremente al idioma Yucateco. *Merida. Imprenta de José D. Espinosa.* Tomo I, 1846, pp. 145. Tomo II, Impreso por Nazario Novelo, 1849, pp. 268. Tomo III, 1850, pp. 254. Tomo IV, 1850, pp. 228.

Much the largest work issued up to the date in the Maya language.

28. Ruz (P. Fray Joaquin). Explicacion de una parte de la Doctrina Cristiana. Por el R. P. M. Fr. Placido Rico Frontaura. Traducido al idioma Yucateca por el R. P. Fr. Joaquin Ruz. *Merida de Yucatan. Oficina de J. D. Espinosa.* 1847. 8vo. pp. 390, 3 pp. Indice.

29. Ruz (P. Fray Joaquin). Manual Romana Toledano, y Yucateco para la administracion de los Santos Sacramentos. *Mérida de Yucatán. En la oficina de José D. Espinosa.* 1846. 8vo. pp. 191.

30. (Bound with Vol. 13.) Ruz (P. Fray Joaquin). Catecismo y Exposicion Breve de la Doctrina Cristiana. Traducida al idioma Yucateco. *Merida de Yucatan. Impreso por José D. Espinosa.* 1847. 8vo. pp. 88.

31. Ruz (P. Fray Joaquin). Via Sacra del divino Amante Corazon de Jesus &c. Traducida al Idioma Yucateco. Merida de Yucatan. Impreso por Nazario Novelo. 1849. 24^{mo}, pp. 34.

32. Ruz (P. Fray Joaquin). El Devoto instruido en el Santo Sacrificio de la misa. Por el P. Luiz Lanzi. Traduccion libre al Idioma Yucateco. *Merida de Yucatan.* Impreso por José Antonio Pino, 1835. pp. 62. 16°.

Manuscript copy, carefully made, with fac-simile title-page by Dr. Berendt in 1873.

33. Ruz (P. Fray Joaquin). Catecismo Historica ó Compendio de la Istoria Sagrada y de la Doctrina Cristiana etc. *En Merida de Yucatan. En la oficina á cargo de Domingo Canton. Año de 1822.* pp. 186. 16°.

The title, preface, contents, last two pages and errata copied in fac-simile. It is needless to say the work is of the greatest rarity. It is the first edition of the first work published by Father Ruz.

34. Ruz (P. Fray Joaquin). Leti u cilich Evangelio Jesu Cristo hebix San Lucas. Londres. 1865. 16°. pp. 90.

This Maya translation of the gospel of St. Luke was made by Father Ruz, and the first draught of it in his handwriting with numerous corrections by himself is now in the collection of the Rev. Crescencio Carrillo, of Merida. A copy of this translation was obtained by the Rev. John Kingdon (see No. 14) and published in London, giving no credit whatever to Father Ruz.

Father Joaquin Ruz was born in Merida, 1772, and died in 1855. Accustomed from childhood to the Maya tongue, he became the most fertile author who has yet appeared in it. His style has however been severely criticized by almost all competent scholars as impressing on the native language grammatical forms, turns of expression, and compounds, foreign to its history and character. Ruz was well aware that he was making these innovations, but claimed they were called for in order to elevate and develop the powers of the Maya. Dr. Berendt succeeded in obtaining a complete set of his works, the only one I believe which can now be found. For a full discussion of his labors see Carrillo *Hist. de la Leng. Maya*, § xvii.

35. Gala (Leandro R. de la) U Cibhuun hach noh Tzic benil Ahaucaan. *Ho U Jalhuun Jose D. Espinosa*. (no date, but printed 1870.) 8vo. 2 cols. pp. 8.

A pastoral sermon by Bishop Gala of Yucatan, printed in Maya and Spanish. *Ho* is the Maya name for Merida.

36. Pastoral del Ilustrisimo Señor Obispo dirigida a los Indigenas de esta Diocesis. *Merida de Yucatan, Impreso por Antonio Petra*. 1848. 8vo. pp. 8.

The Pastoral is by Bishop José Maria Guerra and is given in both Spanish and Maya, the translation into the latter tongue having been made, according to a note of Dr. Berendt's, by Don José Canuto Vela.

37. Fletcher, (Richard). Catecismo de los Metodistas. No. I. Para los niños de tierna edad. Catecismo ti le Metodistaob. No. II. Utial mehen palaloob. Londres. 1865. 16°. 18 leaves.

38. Fletcher, (Richard). Breve Devocionario para todos los Dias de la Semana. Payalchioob utial tulacal le u kiniloob ti le semana. Londres. 1865. 16°. 18 leaves.

These works, printed without name of author by W. M.

Watts, Crown Court, Temple Bar, London, were written by the Rev. Richard Fletcher, Methodist missionary at Corozal, in the English section of Yucatan. The Maya is extremely corrupt, both in words and syntax.

39. Fletcher, (Richard), and Henderson, (Alexander) *Leti u Ebanhelio Hebix Huan*. London. 1869. 24°. pp. 83.

A translation of St. John into the Maya dialect of Belize, by the Protestant Missionaries named. It was printed at Cambridge for the British and Foreign Bible Society, at the University Press.

40. Henderson, (Alexander) *Ebanhelio Hezu-Clizto hebix Zan Lucaz*. pp. 14. 12°.

This tract embraces four chapters of Saint Luke, as translated by Ruz and published by Kingdon (see No. 34), corrected by the Rev. Alexander Henderson, Baptist missionary at Belize, and printed by the Baptist Bible Translation Society. London, 1870.

41. Garcia (Manuel). *El Toro de Sinkeuel. Leyenda Hipica, Politico-Tauromaquica*. Merida. Imprenta á cargo de Isac Manuel Avila. 1856. 24°. pp. 32.

A political squib, said in a note of Dr. Berendt's to be written by Manuel Garcia and directed against General Ampudia. It is interesting in this connection for the many Maya words used by the writer, and as indicating the general familiarity with that tongue which he takes for granted among his readers.

42. *Lengua Maya. Miscelanea*. 3 vols. 12°.

Manuscript, containing copies and extracts of various documents by Dr. Berendt, as follows.

Vol. I. 1. *Vocabulario Español-Maya, copiado de Waldeck*. 2. *Frases de conversacion, Maya y Español*. 3. *Nombres de Pueblos*. 4. *Borrador de un Sermon*. 5. *Vocabulario del Dialecto de Peten*. 6. *Palabras del Idioma Punc tunc*. 7. *Numerales en Maya, Kachiquel, Huasteca, Mexicano y Othomi*. 8. *Numerales en Maya*. 9. *Las Profecias de los Mayas*. 10. *Doctrina cristiana en el Dialecto de la Montana de Holmul (Peten)*. 11. *Vocablos de la lengua de Yucatan en Oviedo*. 12. *Forma de administrar etc., en Lengua Maya*. 13. *Tabla de multiplicar*. 14. *Acto de Contricion en Maya*. 15. *Modo de administrar etc. en Maya*. 16. *El mismo abre-*

viado. 17. Proclama á los Indios sublevados. 18. Alocucion de Indios á Maximilian.

43. Vol. II. 1. Epocas de la Historia de Yucatan. 2. Id. tres versiones. 3. Las Profecias de los Mayas. 4. Titulo de las Tierras del Pueblo Chac xulub chen. 5. Fragmentos sobre la cronologia de los Mayas. 6. Las Profecias de los Mayas. 7. Parte del Chilam Balam de mani. 8. Pronosticos de los Ahaues. 9. Historia de la Doncella Teodora.

44. Vol. III. 1. Predicciones de los Meses. 2. Fragmentos de la Historia sagrada. 3. Las Epocas de la Hist. Antig. de Yucatan. 4. Los Años de la Era Cristiana, etc. 5. Caucion Amorosa. 6. Invocation au Soleil. 7. Titulo de un solar en Acaueh (1767). 8. Dos Piezas de la Hacienda Xtepen. 9. Una orden de Gobierno de Yucatan (en Maya). 10. Dos Oraciones en Lengua Maya. 11. Propositiones de los Indios sublevados.

45. Perez (D. Juan Pio). Recetarios de Indios en Lengua Maya. Indices de Plantas Medicináles y de Enfermedades coordinados por D. Juan Pio Perez. Con Extractos de los Recetarios, Notas y Añadiduras, por C. Hermann Berendt, M. D. Merida, 1870. Large 4°. pp. 79. Some blank.

Manuscript. The medical part of the Books of Chilam Balam (No. 49) were carefully studied by both Perez and Berendt, the latter possessing the requisite medical and botanical knowledge to appreciate the subject at its proper value. The result is presented in this work, which, however, was left in an unfinished condition.

46. Carvajal (D. Francisco). Discurso para el Descendimiento del Señor.

Manuscript, forty pages 12°, copied from the original in Merida. The author was cura at Ternax, was born about 1790, and was brother of Don José Segundo Carbajal, governor of Yucatan 1829-1832. The language of the Discurso is considered a model of elegant style and pure diction in Maya. The author also left a collection of proverbs, etc., in Maya.

47. Bound with v. 46. Sermones en Lengua Maya. Copiados de un Manuscrito Anciano.

Manuscript, 112 pages 12°, copied from one in the library of the Rev. Crescencio Carrillo, Merida. The paper and writing of the original date from the last half of the eighteenth

century. The language is clear and correct "muy comun y muy intelligible por todos los Yucatecos" as is noted by a competent authority.

48. Berendt (C Hermann). *Nombres Proprios en Lengua Maya*.

Manuscript. A series of notes and studies on the proper names of persons, families, and places, in the Maya. Though, like most of his other projects, left incomplete by the author, a rich material is prepared for the future student. The volume contains about 150 folio leaves, unnumbered.

49. Chilam Balam. *Articulos y Fragmentos de Manuscritos Antiguos en Lengua Maya, colectados y copiados en Facsimile por C. Hermann Berendt, M. D. Merida, 1868. 1 vol. 4°. pp. 200.*

50. Códice Perez. Chilam Balam. *Articulos y Fragmentos de Manuscritos Antiguos en Lengua Maya colectados por D. Juan Pio Perez. Copiado en Mérida. 1870. 1 vol. 4°. pp. vi, 258.*

Manuscript. These two volumes and the *Diccionario de Motul* (No. 1), are the gems of Dr. Berendt's collection. They present a body of native literature scarcely equalled in peculiar traits, in marked individuality, as well as in richness by any other American nation; and when it is considered that the Mayas were by all odds the most civilized nation of the Western continent, the interest attaching to these volumes is vastly increased.

CAKCHIQUEL, KICHE, AND TZUTUHIL.

These three closely related dialects are spoken by the natives of Guatemala. The Cakchiquel is known also as the "metropolitan language," *lengua metropolitana*.

51. Villacañas (R. P. Fray Benito de). *Arte y Vocabulario de la Lengua Cakchiquel. Capiado en Nueva York. 1871. 4°. pp. 346.*

Manuscript, from the only copy known, now or late in the library of the Ethnological Society. Villacañas died in 1610 at the age of 73 years, in the Dominican Convent in the city of Guatemala. This is but one of a number of works he wrote in

Cakchiquel, none of which has been published. They are especially valuable as presenting that language as it was spoken in the century of the conquest. Inserted in this volume is a brief life of Villacañas and a list of his works taken from an unpublished work of Don Juan Gavarrete, entitled, *Apuntes para los Anales del Antiguo Reino de Guatemala*.

52. Guzman (F. Pantaleon de). Libro Yntitulado Compendio de Nombres en Lengua Cakchiquel y Significados de Verbos por Ymperativos y Acusativos Reciprocicos, en doce Tratados. 1 vol. 4°. pp. 323.

Manuscript, from the original dated 1704, late in the possession of Mr. E. G. Squier (see his *Monograph of Authors*, p. 33, No. 182 of this catalogue). It is an extremely useful book, but inconveniently arranged.

53. Brasseur de Bourbourg (L'Abbé). Grammaire de la Langue Quiché * * avec un Vocabulaire. * * Rabinal-Achi, Drame Indigène, recueilli par l'Abbé Brasseur de Bourbourg. Paris. Arthus Bertrand. 1862. 1 vol. 8vo. 2 parts, pp. xvii, 246, and 122, 12.

The Kiche Grammar and the Vocabulary in this volume are taken from the *Tesoro de las tres Lenguas, Quiche, Cakchiquel y Tzutuhil*, of Father Francisco Ximenez. The native drama of Rabinal Achi according to the introduction written by the Abbé, was collected by him from the natives of the parish of Rabinal, in Vera Paz. But a note by Dr. Berendt asserts that the Abbé found the ms. of it complete in the hands of a *haciendado* on the road from Guatemala to Chiapas, and that the original still exists there.

54. Torresano (Fr. Estevan). Arte de Lengua Cakchiquel. Año de 1754. 1 vol. 12°. pp. 180.

Manuscript. The original is in the National Library of Paris. One or two other copies have been made from it.

55. Anleo (Fr. Bartolome). Arte de Lengua Kiche. 1 vol. 12°. pp. 133.

Manuscript. The original is lost, but a copy made in 1744 by Fr. Antonio Ramirez de Utrilla is preserved in the National Library, Paris.

56. Zaccicoxol, ó, Baile de Cortes. En Kiché y Castellano. Coban. 1875. 4°. pp. 69.

Manuscript. This is a modern drama written by a native, in

Kiche and Spanish, the plot based on the conquest of Mexico. It is one of the few correct specimens of the native drama which have been preserved, and although not possessing the claim of antiquity, presents the general style and manner of treatment adopted in the primitive scenic representations.

57. *Calendario de los Indios de Guatemala*. 1685. Cakchi quel. 4°. pp. 27.

58. Bound with 57. *Calendario de los Indios de Guatemala*. 1722. Kiché. 4°. pp. 50.

Manuscript, the two bound in one volume. Two precious pieces, beautifully copied in facsimile by Dr. Berendt from ancient manuscripts he discovered in Guatemala. They present a detailed explanation of the calendars of the two nations, and may perhaps be the means of solving the strange problems presented by the chronology of the Mexican and Central American nations. The same artificial and intricate system of measuring time prevailed throughout these regions, and its character seems to point more distinctly to Asiatic influences than any other trait in American civilization.

59. *Brasseur de Bourbourg*. (Abbé E. Charles). *Popal Vuh. Le Livre Sacré et les Mythes de l'Antiquité Américaine*. Paris, *Arthur Bertrand*. 1861. 8vo. pp. cclxxix, 367.

The *Popal Vuh* is the most complete body of American mythology extant. The text is edited and translated in the above volume by the Abbé, but in a manner to leave much to be desired in both respects. The omission of the distinctive signs of the four consonants peculiar to the Kiche is at the outset a serious blemish. The translation is made under the influence of theories which distort the real meaning. For further criticisms, I refer to the essay I read before the American Philosophical Society, entitled "The Names of the Gods in the Kiche Myths." (Proceedings of the American Philosophical Society, Vol. xix, 1881.)

60. *Noticias de Varias Plantas y sus Virtudes*. 24°. pp. 29.

Manuscript, copied from the original in Yucatan. It appears to have been written about the beginning of the present century, and gives the Maya names of many plants of supposed medicinal properties.

POCOMCHI.

Spoken in the Department of Vera Paz.

61. Diccionario Pokomchi-Castellano y Castellano-Pokomchi de San Cristobal Cahcoh. Fragmentos. Folio. 4 prel. leaves and 145 leaves.

Manuscript, original. This is the work of a Dominican missionary, written about the end of the sixteenth century. The whole appears to have covered at least 900 leaves. These valuable remains were presented to Dr. Berendt in 1875 by the cura of San Cristobal Cahcoh in Guatemala. The writing is small but quite legible.

62. Aguilera (Fr. Hippolito de). Doctrina Christiana en Pocomchi. Escrita por Fr. Hippolito de Aguilera, Predicador, Cura de este Partido de el Pocomché, Santa Maria Tactic. 8vo. pp. 2, 14.

Manuscript, copied from a ms. in the Parochial archives of Coban in Vera Paz, dated 1741.

63. Aguilar (P. Fr. Francisco, Cura de Tactic). Sermones y Pláticas en lengua Castellana y Pocomchi, 1818-1820.

Manuscript, original, in two volumes folio. Vol. I, 2 prel. leaves and leaves numbered 1-30 and 1-78; Vol. II, leaves numbered 1-97. The writing is in a large and reasonably plain hand, the Pocomchi and Spanish being in parallel columns on the same page. The author was a Dominican, Cura of Tactic in Vera Paz, and thoroughly conversant with the language.

64. Aguilar, (P. Fr. Francisco). Platica en Lengua Pocomchi. Tamahun. 17 de diciembre de 1822. 12°. pp. 24.

Manuscript, copied from the original in the parochial archives of Cahabon in Vera Paz. The Pocomchi and Spanish are on opposite pages. This is a copy of the first sermon in Pocomchi.

65. Aguilar, (P. Fr. Francisco). Platicas en Pocomchi. 1818 and 1822. 24°. Leaves 15 and 40.

Manuscript, original. Two sermons in Pocomchi and Spanish, written in a large clear hand. Obtained from the parochial archives of Cahaban in Vera Paz.

66. Doctrina Christiana en Pocomchi. Año de 1810. 8°. 2 prel. leaves and pp. 39.

Manuscript, copied from the original in the parish of Tactic.

67. Confesonario en Castellano y Pocomchi. Tactic, Año de 1814. 8°. 2 prel. leaves and pp. 40.

Manuscript. The full title is "Dialogo entre Confesar y Penitente, ó modo de confesar Yndios en lengua Poconchi, 1814." It is arranged in two columns, Pocomchi and Spanish.

68. Libro en Pocomchi y Kekchi. 8vo. 194 leaves.

Manuscript, original, from the parochial archives of Coban in Vera Paz. The volume contains a large assortment of sermons, *confesonarios*, *doctrinas*, *frases*, *catecismos*, and other religious and grammatical matter in and on the two dialects. Most of the leaves are in good condition and quite legible. They date from various periods in the 18th century. Among the articles are the original Doctrina and various sermons of Fr. Hippolito de Aguilera; an Arte de Lengua Cakchi.

KEKCHI.

69. Arte de lengua Cacchi para Bien comun. Traslado de uno que tuvo el P^e P^{do}r Grl. Fray Joseph Ruiz, que de Dios gose. San Juan Chamelco. 1741. 8°. 2 prel. leaves and pp. 41.

Manuscript, copied from that in No. 68. The original contains many errors and obsolete phrases. The present copy was submitted, word by word, by Dr. Berendt to an intelligent native, and his suggestions and corrections entered in red ink on the margin.

70. Coy (José Domingo). Ortografia en Lengua ccechi, traducida por José Domingo Coy, en la Ciudad de Coban. Año de 1870. 12°. pp. 16.

Manuscript, original, by an educated native Indian.

71. Coy, (José Domingo). Frases de Conversacion en Lengua Quecchi. Apuntadas por Domingo Coy, Indio de Coban, 1868. 12°. pp. 7.

Manuscript, copied in Coban.

72. Coy, (José Domingo). Ortografia en lengua ccechi. 8vo. pp. 32.

Manuscript, copied from No. 70.

73. Bound in Vol. 70. Via Sacra en Lengua ccakchi. Año de 1861. 24 leaves.

Manuscript, original, copied by Domingo Coy from an ancient manuscript now lost.

74. Bound in Vol. 71. *Via Sacra en Lengua ccacchi*. Copiado de un Ms. en poder de Domingo Coy, indio de Coban. Coban, April, 1875. 8vo. pp. 30.

Manuscript. A copy of No. 73.

75. *Los Misterios del S^{mo} Rosario en lengua Cakchi*. 8vo. pp. 17.

Manuscript, copied from No. 68.

76. *Doctrina Christiana en lengua ccacchi*. Traslada por mano y pluma de José Secundino Paccay en 15 de Setiembre del Año de 1861. 8°. pp. 114.

Manuscript, copy. The original writer is unknown, but the forms of expression point to a remote period for the translation.

77. *Coleccion de Escritos Menores en lengua Kekchi de la Vera Paz*. Coban. pp. 19. 8°. 1875.

Manuscript, copies of various documents from Nos. 80 and 68 with emendations and notes.

78. *Platicas de la Historia Sagrada en lengua Cacchi*. Con un fragmento de un tratado por Fr. Domingo de Vico. 1629. 18 leaves. 8°.

Manuscript, original, in a regular, clear hand of the seventeenth century.

79. *Platicas de la Historia Sagrada en lengua Cacchi, del Siglo xvii^{mo}*. 8°. 3 prel. and 126 leaves.

Manuscript, original, several of the leaves nearly destroyed, and the whole much stained.

80. *Platicas en lengua Kekchi*. 1856. 16°.

Manuscript, original. Contains eleven sermons written in 1853-6 by the cura of Coban.

81. Villacorta (Rafael). *Doctrina Cristiana en lengua Castellana. Quekchi y Pocomchi, coordinada por Rafael Villacorta*. Sto. Domingo Coban. 1875. Folio, 7 leaves.

Manuscript, original. An interlinear translation of the *Doctrina* into the two dialects named. Clearly written and instructive.

HUASTECA.

82. Tapia Zenteno (Carlos de). *Diccionario Huasteco-Español extractado de la Noticia de la lengua Huasteca con*

Catecismo y Doctrina Christiana y con un copioso Diccionario, por Carlos de Tapia Zenteno. Por C. H. Berendt, M. D. Nueva York, 1867. 8vo. pp. 288.

Manuscript. This is a copy of the dictionary of Tapia Zenteno, published in Mexico, 1767, with numerous additions, and marginal comparisons of Huasteca words with others in Maya and Cakchiquel. The number of words is about 3000.

83. Berendt (C. Hermann). Diccionario Español-Huasteco, formado de las listas en la *Noticia y Doctrina* de Tapia Zenteno, de la Nueva Redaccion que los dio Don Marcelo Alexandre, etc. 8vo. pp. 84, and some unnumbered leaves.

Manuscript. This is the rough draught of the work, no clean copy of which was made. It gives about 2750 words. Included are a long letter and original vocabulary collected by Don Marcelo Alexandre, who published a paper in the Huasteco in the *Boletín de la Sociedad Mexicana de Geografía*.

CHOLTI.

84. Moran (el M. R. P. Fray Francisco). Arte en Lengua Cholti. Con fragmentos de Doctrina Christiana y Confesionario en la misma lengua. Copia de 1685. 1 vol. 8°. pp. 80.

Manuscript, copied from the original in the library of the American Philosophical Society. I have described Moran's work in an article in the *American Journal of Science and Arts*, May, 1869, pp. 222-230.

85. Moran (el M. R. P. Fray Francisco). Vocabulario en Lengua Cholti. Extractado del Vocabulario que compuso el R. P. Fray Francisco Moran, Dominicano, 8vo. pp. 12.

Manuscript, from the same source as the last mentioned. Added to it are a few pages with the title: "Some words of the Chorti language of Zacapa. Collected by John L. Stephens, 1839."

MAM.

86. Contreras (Don Rafael). Vocabulario de la lengua Mam, por D. Rafael Contreras, Cura de Chiantla. 1866. Copiado del original en poder de D. Juan Gavarrete en Guatemala por Dr. C. H. Berendt. 1875. 8vo. pp. 7.

Manuscript, containing about 80 words in Mam.

87. Reinoso (Don Diego). Extractos del "Arte y Vocabulario en Lengua Mame," Mexico, 1644. 12°. pp. 9.

Manuscript. Only five copies of the works of Reinoso are known. These extracts give about 150 words from his vocabulary. For a notice of the book see Buckingham Smith, *Historical Magazine*, vol. v, p. 117. (New York, 1861.)

POCOMAM.

88. Vocabulario de la Lengua Pocomam compilado de Gage y Scherzer, por C. H. B. Nueva York, 1867. 8vo. pp. 14.

Manuscript, with an interesting *Advertencia*.

89. Vocabulario de la lengua Pocomam de Mita. Por D. Sebastian Valdez, Cura de Jutiapa. 1868. Copiado del Original en poder de D. Juan Gavarrete en Guatemala, 1875. 8vo. pp. 7.

Manuscript, containing nearly a hundred words in Pocomam with their correspondents in Pocomchi to illustrate the resemblance of these two dialects.

90. Bromowicz (Franz). Vocabulario de la lengua Pocomam de Jilotepec. 1878. Folio, 15 leaves.

Manuscript. A few months before Dr. Berendt's death he sent a young German, Franz Bromowicz, to the district occupied by the Pocomans to collect vocabularies and other information, especially in reference to the tongue called by Juarros the *Alaguilac*, spoken in Acataguastlan. The rough notes of this journey are contained in these leaves. Two vocabularies are given of about 200 words each.

IXIL.

91. Doctrina y Confesionario en lengua Ixil. Precedidos de un corto modo para aprenderla lengua, y Ritual de Matrimonio. Por el Cura Párroco de Nebah. 1824. 24°. pp. 20.

Manuscript, original. In fair condition, and the only work in or upon this dialect that I have any knowledge of.

TZENDAL.

92. Ara (R. P. Fr. Domingo de). Extractos del "Arte de la lengua Tzendal" por el R. P. Fr. Domingo de Ara, de la Orden de S°. Domingo. 12°. pp. 8.

Manuscript. The original was in the possession of the late

Abbé Brasseur de Bourbourg : see his *Bibliothèque Mexico-Guatimalienne*, pp. 10-13.

93. Modo de Administrar los Sacramentos, en Castellano y Tzendal. 1707. Tuxtla Gutierrez, 1870. 4°. pp. 44.

Manuscript, from the original in the possession of the Cura of Chiapa, Don José Hilario Aguilar.

ZOTZIL.

94. Castillejo (el R. P. D. Clemente). Frases en lengua Zotzil. Fragmento. 1830. 3 leaves. 8°.

Manuscript, original. Stained and not very legible. Bound with it is a "Proclamation" of the governor of Chiapas, addressed to the Indians, and printed in the Zotzil tongue. It is dated 1869, and has a Spanish translation.

95. Sanchez (D. José, Maria, Cura of Ocosocantla). Vocabulario Comparativo de las lenguas Zoque de Tuxtla, Zotzil de San Bartolomé de los Llanos, y Chaneabal de Comitán. Con una exhortacion para la Confesion en lengua Zoque y Castellano. Folio, pp. 25.

Manuscript, original. There are 710 words of Zoque, 490 of Zotzil and 261 of Chaneabal.

CHANEABAL.

96. Berendt (C. Hermann). Apuntes sobre la lengua Chaneabal. Con un vocabulario. Tuxtla Gutierrez. 1870. 8°. leaves 7, 25.

Manuscript, containing a vocabulary of 416 words written in Berendt's "Analytical Alphabet," with a preface on the literature and geographical distribution of this mixed dialect.

CHINANTECA.

97. Barreda (el Br. D. Nicolas de la). Doctrina Christiana en lengua Chinanteca, etc. En Mexico. Año de 1730. 8°. pp. 119

Manuscript copy of the first and only edition of Barreda's work, and of the only copy known of it, which was obtained in Mexico by Dr. Berendt, and sold by him to Mr. John Carter Brown of Providence.

98. Berendt (C. H.). Apuntes y Estudios sobre la lengua Chinanteca. 1870. 16 leaves.

Manuscript, first draft.

MIXE.

99. Quintana (Augustin). Confessionario en lengua Mixe. Con vna Construcccion de las Oraciones de la Doctrina Christiana y vn Compendio de Voces Mixes para enseñarse á pronunciar la dicha lengua. Escrito todo por el P. R. Augustin de Quintana, Cura que fue de la Doctrina de San Juan Bautista de Xvquila. Año de 1733. 8°. pp. 202.

Manuscript, copied from the first and only edition of Quintana, printed at Mexico, 1733.

100. Berendt (C. H.). Las Oraciones de la Doctrina Christiana, compuestas del Análisis que de ellas tral el *Confessionario en Lengua Mixe* del R. P. Fray Augustin de Quintana. Por C. Hermann Berendt. Nueva York 1871. 8vo. pp. 12.

Manuscript, based on the last mentioned work.

101. Berendt, (C. H.). Apuntes sobre la Lengua Mixe. Por C. H. Berendt, M. D. 1870. 12°. pp. 16.

Manuscript, giving a sketch of the literature of the Mixe tongue, its geographical distribution, comparison with the Zoque and Zapotec, etc.

ZAPOTECA.

102. d'Feria. Doctrina Xpiana en lëgua Çapoteca. Cõpuesta por el muy R. P. Fray Pedro d'Feria. 1567.

Manuscript copy, pp. 24. 8°. Only two copies of the original printed in Mexico are known, one in the Bodleian library, Oxford, the other in the J. Carter Brown library, Providence, from which the present copy was made with scrupulous fidelity by Dr. Berendt in 1871. He has added a valuable critical preface.

103. Martinez (Fr. Alonso). Manual breve y compendioso para enpezar a aprender lengua Zapoteca y Administrar en caso de necesidad. Año de 1633. 8°. pp. 66.

Manuscript, copied by Dr. Berendt from the original mss. in possession of Don. J. M. Melgar, of Vera Cruz. No other copy is known.

104. Levanto (Fr. Leonardo). Cathecismo de la Doctrina Christiana en lengua Zapoteca. Dispuesto por el M. R. P. Fr. Leonardo Levanto. Provincial que fue dos veces de la Provincia de S. Hypolito Marty de Oxaco, etc. 8°. pp. 82.

Manuscript copy of the second edition of this work, printed at Mexico, 1776.

105. Reglas mas comunes del Arte del Idioma Zapoteco del Valle con una lista de los Nombres mas usuales, el Confesionario y las Oraciones principales de la Doctrina Cristiana en la misma lengua. San Martin Tilcaxete, 1793. Copiado en Mérida. 1871. 1 vol. 8°. pp. 148.

Manuscript, copied from various manuscripts and printed sources by Dr. Berendt.

106. Sanchez (Don José Maria, cura of Osocantla). Apuntes en lengua Zapoteca. Con añadiduras. Tuxtla, 1870. 8°. pp. 31.

Manuscript, partly original, with memoranda and additions by Dr. Berendt.

107. Fuertes, E. A. Vocabularies of the Zapoteco from Suchitan, Zoque from Chimalapa, and Mixe from Guichicore. 1871. 8°. pp. 53.

Manuscript. The collections of Mr. Fuertes were made for the Smithsonian Institution. Dr. Berendt does not seem to have considered them very accurate.

ZOQUE.

108. Arte Breve en lengua Tzoque, conforme se habla en Tecpatlan. Precedido de la Doctrina Cristiana y Catecismo en la misma lengua. Copiado de un MS. en poder del Abate Brasseur. Mérida de Yucatan, 1870. 8°. pp. 57.

Manuscript, apparently from that mentioned with a somewhat different title in Brasseur. *Bib. Mex.-Guat.* p. 18.

109. Vocabulario de la lengua Zoque. Año de 1733. Copiado de un MS. en posesion del licenciado Don Jose Mariano Rodriguez, Tuxtla. Gutierrez. 1870. 8°. pp. x, 255, two cols.

Manuscript. Without doubt the most complete vocabulary of the Zoque in existence, containing nearly 21,000 words. It is in Spanish-Zoque only, and has a valuable introduction on the sounds of the language by Dr. Berendt.

110. Berendt (C. Hermann). Vocabulario de la lengua Zoque de Tapijulapa. San Juan Bautista. 1862. 8vo. pp. 13.

Manuscript, containing about 180 Zoque words, obtained from a pure-blood native of Tapijulapa.

111. Berendt (C. Hermann). Apuntes y Estudios sobre la lengua Zoque. Tuxtla Gutierrez. 1869, 1870. 8°. pp. 63.

Manuscript, rough draft and notes, containing much valuable material.

112. *Doctrina Christiana en lengua Zoque*. Año de 1736. 24°. 51 and 7 leaves.

Manuscript, original, being fragments of a *Doctrina* written early in the last century, and presented to Dr. Berendt by Don José Maria Sanchez, cura of Ocosocantla. It is quite legible, though stained and frayed.

113. Sanchez (José Maria). Fragmento de unas exhortaciones para la observancia de los Mandamientos del Decálogo. En lengua Zoque. 1864. 3 leaves, folio.

Manuscript, original, by the cura of Ocosocantla.

114. *La Pasion*. Fragmento en lengua Zoque. 8vo. 3 leaves.

Manuscript, from the early part of this century.

115. *La Pasion de Nro Señor Jesucristo*. En lengua Zoque. Los Evangelios del Domingo de Ramos, Jueves Santo y Vierues Santo, como los cantan los Indios de Tuxtla. Tuxtla Gutierrez. 1870. Large 4°. pp. 55.

Manuscript. It is an ancient custom with the Indians of Tuxtla to appoint certain of their village to sing the history of the Passion during Holy Week. A reader seats himself in the middle of the circle they form, and reads a paragraph which the others repeat, chanting the words to a monotonous air. The texts of these histories differ considerably. Dr. Berendt has collected three of them in this volume, for the sake of comparison, and No. 1 is a fragment of one of the originals.

CHIAPANECA.

116. Alborno (Juan de). *Arte de la lengua Chiapaneca*. Compuesto por el R. P. Fr. Juan de Alborno, de la Orden de Predicadores. Copiado de un Ms. en poder del Abate Brasseur. Merida de Yucatan, 1870. 8°. pp. 40.

Manuscript. Alborno's work was printed in Paris in 1875, by the purchaser of Brasseur's collection.

117. *Doctrina Christiana en lengua Chapaneca*. Fragmento de vn Manuscrito anónimo. Copiando en fac-simile por C. Herman Berendt, M. D. Tuxtla Gutierrez. 1869. 4°. pp. 67.

Manuscript. A remarkably beautiful piece of calligraphy, with numerous pen drawings and colored initials. The original dates from the sixteenth century.

118. Libro de Cuentas de la Cofradia del Rosario en el pueblo de Suchiapa desde 1796 hasta 1821. 8vo. 114 leaves.

Manuscript, original, in poor condition. A note of Dr. Berendt says of it "contiene muchos apuntes en lengua Chapaneca, relativos a las contribuciones de los cofrades y á los gastos de la Cofradia."

119. Pacion de Juebes santo quesí yospaque tzesi is cohina is año de 1818. Folio. 4 leaves.

Manuscript, original, much worn, of the Passion, in Chiapanec.

120. La Pasion en lengua Chapaneca. Canciones de los Indios de Suchiapa. Tuxtla Gutierrez, 1870. 4°. pp. 93.

Manuscript. The Indians of Suchiapa have among them three fraternities (cofradias) devoted to the adoration respectively of Jesus of Nazareth, the Holy Cross, and the Virgin of the Rosary. Each of these has a volume of Rules "Ordenanzas" in the Chiapanec tongue, containing portions of the Passion, which they are accustomed to sing in the church during Holy Week. The above volume contains copies of these Ordenanzas. They bear the dates 1723, 1780, and 1781.

121. Berendt (C. H.). Apuntes y Estudios sobre la lengua Chapaneca. Tuxtla Gutierrez, 1869. 1870. 8°.

Manuscript, rough draft, contains notes on the history, grammar, relationship, calendar, etc. of the Chiapanecs.

HUAVE.

122. Vocablos de la lengua Huave colectados por el Abate Brasseur de Bourbourg, comparados con los equivalentes en las principales lenguas de la America del Sur y en las lenguas vecinas de Oaxaca y Chiapas. 8vo. pp. 15.

Manuscript, compiled by Dr. Berendt. It contains also the Huave words collected by Mr. E. A. Fuertes, in 1870, for the Smithsonian.

POPOLUCA, CHONTAL.

123. Vocabulario de la Lengua Popoluca de Oluta. Recogido por C. Hermann Berendt. Frontera en Tabasco. 1862. pp. 7. 8°.

Manuscript.

124. Vocabulario de la lengua Popoluca ò Chontal de Mata-

galpa (Nicaragua). Por D. Victor Noguera, Cura de Matagalpa. 1855. pp. vi, 6. Manuscript.

125. Vocablos de la lengua Chontal de Oxaca, recogidos en San Miguel Ecatepec, por John Porter Bliss. 1871. Comparados con el Chontal de otras Partes. 8vo. pp. 3.

LANGUAGES OF HONDURAS.

126. Henderson (Alexander). Grammar of the Karif Language as spoken in the Bay of Honduras. Belize. 1872. 8vo. pp. 110.

Manuscript, copied from the original.

127. Henderson, (Alexander). Dictionary of the Karif Language as spoken in the Bay of Honduras. Belize, 1872. 8vo. pp. 232.

Manuscript, copied from the original, and re-arranged by Dr. Berendt, with various new words obtained from the author. The volume includes a number of autograph letters from Mr. Henderson, who was for forty years a missionary in Honduras.

128. Henderson, (Alexander). A Grammar of the Mosquito Language. By Alexander Henderson, Belize, Honduras, New York. Printed by John Gray. 1846. 1 vol. 8vo. pp. 47.

129. Mosquito Vocabulary, from Captain George Henderson's "Account of the British Settlement of Honduras." 2nd ed. London. 1811. pp. 4.

Manuscript.

130. Mosquito Vocabulary from Thomas Young's "Narrative of a Residence on the Mosquito Shore." London, 1842. pp. 15.

Manuscript.

131. Vocabulario de la Lengua de los Mósquitos. Sacado de la Relacion de los Sr̃es. Fellechner, Müller, y Hesse. Berlin, 1845. pp. 25.

Manuscript.

132. A Grammatical Sketch of the Language spoken by the Indians of the Mosquito Shore. By Alexander I. Cotheal. 8vo. pp. 40. From the *Trans. of the Am. Ethnol. Soc. Vol. II.*

133. A short Vocabulary of the Twaka Indians, together with a few words of the San Blas Indians, both tribes of the Mosquito Coast. Collected by Mr. Haly and communicated by the Rev. Alexander Henderson, Baptist Missionary in Belize. 1871. pp. 12.

Manuscript.

134. Vocabulary of the Caribs in Central America. By Col. Galindo. From the *Jour. of the Royal Geog. Soc.* 1833. pp. 4.

Manuscript.

135. Caribe Vocabulary, by Alexander Henderson. 1870. 1 large sheet.

Manuscript.

136. Vocabulario de los Indios Xicaques, por Amory Edwards. pp. 5.

(Nos. 129-136 bound in the volume Honduras, Nicaragua, and Costa Rica.)

Manuscript.

137. Lenca Vocabularies from the Villages of Guajiquero, Opatoro, Intibucat and Similaton (Honduras). Collected by E. Geo. Squier. pp. 11.

Manuscript. Bound with an account from Harper's Magazine of Squier's visit to Guajiquero.

138. Vocabularios de Lenguas de Honduras y de la parte Septentrional de Nicaragua. 1873, 1874. Folio, pp. 13.

Manuscript. A comparison, by Dr. Berendt, of about 300 words in the Lenca, Xicaque, Chontal, Ulua, Moskito and Caribe languages.

LANGUAGES OF GUATEMALA.

139. Vocabularios de la Lengua Xinca de Sinacan por D. Juan Gavarrete (1868) y de Yupiltepeque y Jalapa por D. Sebastian Valdez, cura de Intiapa, (1868). pp. 15. 8°.

Manuscript.

LANGUAGES OF NICARAGUA.

140. Rocha (Don Juan Eligio de la). Apuntamientos de la lengua Mangué. Masaya 1842. 8vo. pp. 11.

Manuscript, copied in Granada, 1874. Rocha was author of a Spanish Grammar (Leon, 1858) and teacher of French and Spanish Grammar in the University of Leon, where he died in 1873. His brother placed his notes on the Mangué tongue at Dr. Berendt's disposal, who copied from them the above pages.

141. Loga del Niño Dios. Representacion escenica de los Mangues en Namotivá. Santa Catarina, 1874. 8vo. pp. 10.

Manuscript. This *Loga* or Play of the Baby God is written in corrupt Spanish with interspersed Mangué words.

142. Alemany (D. Lorenzo de). *Elementos de Gramatica Castellana*. Nueva edicion, por el Lic. D. J. E. de la Rocha. 24°. *Leon de Nicaragua. Imprenta de la Paz*. 1858.

Interesting for its reference on page 198 to the language of the Mangues, who, the editor remarks, are distinguished "por su idioma sonoro."

143. Chorotega ó Diria Comparada con Chapaneca. 8vo. pp. 5.

Manuscript. Something over a hundred words of each tongue, showing conclusively their relationship.

144. Lengua Chorotega ó Mangue y Lengua Maribia de Subtiaba. Por C. H. B. Nicaragua, 1874. Folio.

Manuscript, containing rough notes of vocabularies and grammatical rules of these languages.

145. Lévy, Pablo. *Vocabulario de la Lengua Ulba*. Por D. Pablo Lévy. Matlack's Falls. 1874. 8vo. pp. 9.

Manuscript. This is the vocabulary printed in Lévy's work on Nicaragua, with some additions and many corrections obtained from him by Dr. Berendt, who met him at Granada in 1874. The words are written in Berendt's "analytical alphabet."

146. Some Words of the Woolwa Indians at the Headwaters of Blewfields River, Nicaragua. Collected by Julius Fröbel, 1851. 8vo. 2 leaves.

Manuscript, copied from Squier's *Nicaragua*. Nos. 143, 145, 146 bound in the volume "Languages of Honduras, Nicaragua, and Costa Rica."

147. Noguera (Victor Jesus). *Vocabulario y Apuntes del Idioma llamado Parrastáh, un dialecto de la lengua Ulba*. Por Don Victor Jesus Noguera, Presbitero. San Tomas Loviguiska. 1874. Folio, 7 leaves.

Manuscript, original. It was prepared at the request of Dr. Berendt.

148. Baile del Güegüence ó Macho-Raton. En lengua Nahuatl de Nicaragua. Large 4°. pp. 53.

Manuscript.

149. Nahuatl de San Augustin Acasaguastlan. Folio, 16 leaves.

Manuscript. Contains four leaves much worn of a legal document, dated 1636, in the Nahuatl language, from the

archives of the parish of San Cristobal Acasaguastlan, presented to Dr. Berendt by the cura, and a Vocabulary collected at San Augustin Acasaguastlan by M. Franz Bromowicz in 1878.

LANGUAGES OF COSTA RICA.

150. Vocabularios de las Lenguas Vizeita y Caché. Colectados por Dr. Lucas Alvarado, 1873.

Manuscript, original, 291 words in all, collected for Dr. Berendt.

151. Vocabulario de la lengua de los Indios del Pueblo de Cachí, Costa Rica. Colectado por Dr. Lucas Alvarado. Cartago. 1866. 8vo. pp. 8.

Manuscript. A dialect of the Talamanca. 72 words.

152. Vocabulario de los Indios de San José de Costa Rica. 1867. Manuscript, original. Contains 128 words. It is a dialect or corruption of the Talamanca.

153. Vocabulario de la lengua de los Indios de Boruca (Costa Pacifica de Costa Rica). Colectado por D. Felipe Valentini. 1862. 126 words.

154. Vocabulario de la Lengua Bribri. Por Felipe Valentini. 186 .

Manuscript.

155. Lengua de Suere ó Huetares, Girolamo Benzoni. Words from his Historia del Mondo Nuevo (1572), with notes.

Manuscript.

Nos. 151-155 inclusive bound in vol. Honduras, Nicaragua, and Costa Rica.

156. Valentini (Phillip). Vocabulario de la Lengua de las Viceitas. Costa de Limon. 1866. 12°. pp. 39.

Manuscript.

157. Vocabulario y Noticias de las Biceitas, Indios de Costa Rica, antigua Provincia de la Talamanca. Tomado por—Lebkowitz, 1867. 5 leaves.

Manuscript. Original.

158. Vocabulario de la Lengua de los Indios Blancos, Valientes y Talamancos en la costa oriental de Costa Rica, por Dr. Karl Scherzer. 8vo. pp. 12.

159. Vocabulario de la lengua de los Indios Viceitas ó Blancos en Costa Rica. Colectada por Karl Scherzer. 1853.

Manuscript copies with notes and corrections.

Nos. 157-159 bound in vol. Honduras, Nicaragua and Costa Rica.

160. Berendt (C. H.). *Vocabularias Comparativos de Lenguas de Costa Rica*. Folio. pp. 17.

Manuscript. Contains a comparison of words in seven languages of Costa Rica.

161. Berendt (C. H.). *Vocabulario de la lengua de los Huatusos, con Apuntes*. San Carlos. 1874.

162. *Vocabulary of the Huatuso Indians*. Collected by J. F. Bransford. 1875.

Manuscript. Original. Contains 42 words. Bound in vol. *Languages of Chiriqui and Darien*.

LANGUAGES OF DARIEN AND PANAMA.

163. *Vocabulary of the Indians of San Blas and of Caledonia Bay*. Recorded by Edward P. Lull, Commander, U. S. N. 1870-1. 8vo. pp. 31.

Manuscript.

164. *Words from the Language of the San Blas Indians*. Communicated by the Rev. Alexander Henderson, of Belize, 1871.

Manuscript, 22 words, compared with Tule, with which they are evidently closely allied.

165. Gabb (Wm. M.). *Vocabulary of the San Blas Indians*. 1874. 8vo. pp. 21.

Manuscript, contains 333 words. Nos. 163-165 bound in vol. *Languages of Chiriqui and Darien*.

166. Gabb (Wm. M.). *On the Indian Tribes and Languages of Costa Rica*. Philadelphia, 1875. 1 vol. 8vo. pp. 120.

167. *Voces de la Lengua de los Indios Cunacunas, extractados del "Viagero Universal."* 19 words.

168. *Vocabulary and Phrases of the Cuna Language*. By Lucien de Puydt. From *Jour. of the Roy. Geog. Soc.* 1869. 8vo. pp. 25.

Manuscript, with maps and notes by Dr. Berendt.

169. *Voces de la Lengua de los Indios del Isthmo de Darien*. From Lionel Wafer's *Voyages*, pp. 5.

170. *Vocabulario de las lenguas de las Indios Sabaneros, Cholos y Bayanos en el Isthmo de Panamá*. Por Berthold

Seeman. From *Trans. of the Amer. Ethnol. Soc.* Vol. III. pp. 11. 1853.

Manuscript.

171. Vocabulary of the Language of the Cholo or Choco Indians, of the Isthmus of Darien. Collected by Dr. Edward Cullen. pp. 6. From the *Jour. Roy. Geog. Soc.* 1851. and

Description of the Choco Indians. From the N. Y. Herald. 1875. With map. Nos. 167-171 bound in vol. Languages of Chiriqui and Darien.

172. Chiriqui words from various sources.

173. Words from Darien languages, Careta, Cunacuna, Darien, Urabá, and Cueba or Coyba.

174. Vocabulary of the language of the Tule Indians. By Dr. Edward Cullen, 1851-1853. From *Trans. London Ethnol. Soc.*

175. Vocabulary of the Muysca, Mosca or Chibcha Language. Collected from various authors and arranged by C. H. B. pp. 17.

Manuscript, with tracings of the curious Muysca hieroglyphs for the numerals.

Nos. 172-175 bound in Languages of Chiriqui and Darien.

176. Schumacher (Dr. Hermann A.). Die Tule Indianer des Staats Panamá (Columbia). Bogotá. 1872. Folio, 9 leaves.

Manuscript, original, by the German Minister-Resident in Bogotá.

177. Berendt (C. Hermann). Comparative Vocabulary of Darien and Costa Rican Languages. New York, 1873. Folio, 6 leaves.

Manuscript. Compares about 150 words in the Cholo, Cueva, Cuna, Tule, Sabanero, Bayano, San Blas, Boruca and Viceita tongues.

MISCELLANEOUS.

178. Berendt (C. Hermann). Palabras y Modismos de la lengua Castellana segun se habla en Nicaragua, colectados y coordinados por C. Hermann Berendt, M. D. 1874. Folio, 203 leaves.

Manuscript, neatly written and bound.

179. Berendt (C. Hermann). Miscellanea Maya. 1 vol. large folio.

234 CATALOGUE OF THE BERENDT LINGUISTIC COLLECTION.

180. Berendt (C. Hermann). *Miscellanea Centro-Americana*.
1 vol. Large folio.

181. Berendt (C. Hermann). *Miscellanea Historica et Lin-
guistica*. 1 vol. Large folio.

Manuscript. In these three large scrap books I have collected and arranged the numerous loose notes and memoranda, observations and comparisons, on Central American ethnology and linguistics, left by Dr. Berendt in portfolios. They contain a mass of valuable material on these subjects.

182. Squier (E. G.). *Monograph of authors who have written on the languages of Central America*. 1 vol. New York, C. B. Richardson. 1861.

183. Landa (Diego de). *Relation des choses de Yucatan*. 1 vol. Paris, Arthus Bertrand. 1864.

THE ORIGIN OF ORNAMENT.

BY STEWART CULIN.*

When we examine the products of man's handicraft, as represented both by his prehistoric remains, as well as by the rudest effort of the existing savage, we everywhere find evidences of an æsthetic sense, of an effort, not only at mere utility, but at decoration and ornament, analogous to that which is universal among cultivated people at the present day.

Considering our immediate surroundings, it is amazing how necessary and matter-of-course we have come to regard the use of ornament as applied to our houses, dress, implements and utensils. We flatter ourselves that it represents our keen appreciation of art, and look with undisguised superiority upon the people of ruder ages and less favored climes.

Enter one of our great department stores, and examine the fabrications of cotton and silk, of glass and metal, wood and lacquer; mere utility is quite insufficient to justify the profusion of form and color with which we are surrounded. Visit any of our art schools; the majority of the students are preparing themselves, not as disciples of Velasquez and Raphael, but to make designs for carpets or knife-handles. The mechanical processes of reproduction have of late enormously increased these tendencies. The general trend of our education is to encourage and foster what is regarded as the "art" instinct, and we have been led to view development of the so-called decorative arts as concomitant with the highest culture.

In studying the history of ornament, our task is simplified if we confine ourselves to the art of savage races. Our modern designs, while they chiefly repeat the past, are so mixed and conventionalized that it is often difficult to analyze them satisfactorily, or trace them to their ultimate origin. Students are ordinarily referred to Greece and Rome or the high cultures of Egypt, Persia and Assyria. While it is true that these countries stand as the ancestral sources of most of our arts, they are

* A lecture delivered in the Free Museum of Science and Art of the University of Pennsylvania, April 11, 1900.

still far removed from the beginning. We must, indeed, leave the direct historic line and turn aside to the so-called sterile and unproductive cultures, if we are to correctly understand the beginnings of man, and unravel the tangled web of modern civilization.

In former lectures, here and elsewhere, I have pointed out that man's amusements were the outcome, not of some innate festal instinct or desire for play—but of religious and divinatory ceremonials. These ceremonies, repeated often at the same season of the year, after their meaning has been lost, or their necessity past, through man's better understanding of natural phenomena, have become the play of our children, the diversions of our youths and even, indeed, the fierce and irrepressible contests of the gaming table. It is my purpose, to-day, to prove an analogous derivation of art in general, and specifically of the decorative arts. To show that ornament and adornment arose, not from some deeply implanted love of beauty in the abstract, or were evolved from small beginnings, as for example, paint and feathers as means of sexual attraction; but instead, are the products of religious sentiment, of magic and superstition; of the reasoning, which led man to attempt through magic to control or influence the forces of nature.

It is safe to assume that the beginnings of ornament are to be found in personal decoration. We have been taught to take for granted that the main incentive here was the desire to please—the effort, both in man and woman, to find favor in each other's eyes; to apply the principles of selection, as illustrated in the plumage of birds, and regard the bright colors and grotesque patterns of aboriginal finery as removed only in point of taste and materials, from the choicest products of Paris and Vienna. It is true that the element of sexual attraction plays no small part in the origin of personal adornment, but the æsthetic was always secondary to the magical. Beauty or attractiveness was heightened not by the development of the natural graces, but by amulets and charms, to which indeed our very word "charm" refers.

A most interesting example of pregnant survival—connecting the old and traditional stage of personal ornament with that of the present day—is to be found in Egypt, in the jewelry

worn by women. We are indebted to Lane, the learned author of "The Manners and Customs of the Modern Egyptians," for not only the names of the various jewels, but an explanation of their talismanic and magical significance. We learn, too, from the same source, of the survival of the custom of blackening the eyelids with antimony or kohl. The little jars for kohl, with other toilet appliances of an Egyptian belle of 4,000 years ago, are to be seen in the superb collection of Egyptian antiquities in this very museum. Beauty—æsthetic beauty was not the origin of this custom, for we know it sprang from an old religious rite—an opening of the eyes—that was practiced alike upon the mummies of Egypt, the carved and painted images of the Chinese pantheon and the grotesque idols of our Southwestern Indians. Face painting, and there is no form of personal decoration more widely distributed—was invariably ceremonial. In the effort man made to identify himself with his god, he endeavored to assume his visage; to mark himself as consecrated to the divinity, as set apart from other men, sealed with the emblem and signature of his protecting genius, or to cover his person with divinely revealed symbols that would render him safe against the attack both of mortal and spiritual foes. Tattooing follows painting, making the paint permanent, even after death and the accidents of time. Among the remains from that great sepulchre at Pachacamac, explored for us by Dr. Max Uhle, are the withered arms of old Peruvians, who died, ages it may be, before Columbus saw our shores, still bearing the indelible stains of their spiritual consecration to some divinity whose name is now entirely forgotten. A world of interest lies in the study both of the face and body painting and the tattoo designs. Often, as is the case with those collected by Mrs. Talcott Williams, in Morocco, and now exhibited in our collection, they have become so far conventionalized as to defy interpretation—retained merely as ornament, and yet perpetuated by an instinct that is at once the puzzle of scholars, and the prime factor in the continued existence of all our institutions. Other physical deformations belong to the same category. The Floridian Indians at the time of the discovery, in common with some of the existing tribes of Brazil, weighted their ears with pendants, so that they hung down over their shoulders. Dr. Furness

found the same custom in Borneo, and again among the marks of sainthood in the images of Buddha are these pendulous ears enabling us to connect the custom with a religious and mythic ideal. The treatment of the hair, whether cut short, worn in a queue, or wrought—as do the maidens in Zūñt in symbolic designs, has depended upon the same underlying mythic notions, which, far more than mere material circumstances, have controlled man's actions and destiny.

Turning from the physical man to his costume,—apart from mere bodily protection, while the material depends upon his life,—of skins, if a hunter,—of wool, if a herdsman,—of cotton or silk, if an agriculturist, or of all combined, if a merchant and engaged in commerce,—all else seems determined by considerations which are neither practical nor æsthetic. An artist who visits this museum to study and admire the various products of aboriginal industry which are displayed here, frequently remarks to me that man pleases most when he is least conscious of his effort to please. He perceives that the charm and beauty of these fabrics and carvings, is not the result of any direct study or appeal to the senses on the part of their makers, and recognizes the presence of an instinct which is almost entirely lacking among professional designers at the present day. We have only to compare an Oriental carpet—no matter how cheap and relatively worthless—with the most ambitious product of our own looms. Let us turn to some of the pictures of our Indians, whose harmonious costumes and picturesque attitudes have been so successfully reproduced on canvas. Almost too late our artists have awakened to a knowledge of the wealth of material—soon to perish—ready to their hand,—on the narrowing reservations of the West. We find repeated the same marvelous color, the same bizarre combinations, the something we have long known and appreciated in the art of the East. But more, we find means to trace the secret of this art to its source, to learn its charm, to unravel its meaning from the very beginning—and not merely of the natural forms upon which it is based, but the reasons underlying their selection and employment. Contact with civilization has wrought many changes in this aboriginal art; the quill work has given place to beads, the gorgets of engraved shell to bosses of metal, and

the rare plumage of semi-tropical birds to the dyed feathers of the hawk and chicken. But the spirit remains, nor will it be lost until the art itself unhappily becomes extinct. Let us consider one of the characteristic designs that we see repeated, with many agreeable permutations of color throughout the continent; the disks, white, yellow, blue, red, variegated, of which no more characteristic and pleasing example can be found than upon this beaded baldrick from the Sioux. These disks are, or were, protective amulets, analogous to the engraved shell gorgets now replaced by metal, and derived, I am well assured, from the ceremonial feather shields of Mexico and the south, shields of the all-protecting war gods of the four world-quarters, whose colors they retain through all their changes.

Apart from those inherent in the material, the colors of our aboriginal raiment are ordained by traditions amounting to laws, as permanent and inviolable as those which control the applied designs. The woven stuffs, wrought to the low singing of some magic song, are in themselves enchanted, and designed, not for mere pleasing show, but as spells against witchcraft and the powers of evil.

Turning our attention for a moment to some of the characteristic adjuncts of Indian costume, in the light of recent investigation we perceive that the plume of hawk or eagle feathers in the hair is intended, not as decoration, but to give the warrior the swiftness and lofty vision of the bird that originally bore them. So too, the necklace of bear claws or the mandibles of birds, the horns worn upon the head—all designed as charms of protection or offence. The weapons, too, are ornamented for other than æsthetic reasons. Man conquers, not by his own might, but with the aid of the divinity. This parang from Borneo, is overladen with charms. Even the Japanese sword which we prize as a treasure of the highest art is in every part magical, from the Sanskrit inscription carved upon its blade, to the metal ornaments (fetiches) bound upon its haft. For what practical purpose did the smith bathe and fast, and protect his forge with sacred emblems? The sword so wrought was one that might not be sheathed until it had drawn blood.

One may see in the collection of pottery from the ancient cliff-dwellers of Mancos Cañon, in our American Hall, many

illustrations of the use of symbolic design applied to even the common domestic pottery of an aboriginal people. As interpreted by Mr. Cushing, we perceive that the frets and spirals, so like the patterns on the Greek vases, refer to the clouds, the lightning and the rain, to the natural phenomena most vital and potential to the continuance of existence in an arid and desert land. Nor was architecture exempt from the influences which dominated personal and ceremonial adornment, nor even the plan of the camp, the citadel, nor as in Peru, the city itself.

In a recent essay,* Mr. W. J. Stillman has furnished us with a definition of the function of art, which covers and describes the unconscious art of the savage more completely, it may be, than the art of our own time. "The primary function of art," he says, "is that of giving form to the ideals and emotions of mankind." He quotes, with approbation, Herbert Spencer's dictum, "ornament was before dress," and declares that the artistic impulse precedes all utilities. From another point of view, Mr. Stillman has reached the same conclusions as the eminent sociologist, conclusions which agree with those formed through comparative retrospective study. Let me quote a few lines from his charmingly written essay:

"It is a common illusion, that the first art-impulse derives, or ever did derive, from the desire to represent nature; and ingenious critics have professed to follow the evolution of art from crude representations of familiar objects. No doubt some of the first delineations we possess have been those of familiar objects with which the delineator had a certain sympathy, but the scientific tendency, as well as the artistic, precedes all our data regarding mental activity so long that we are unable to form sound conclusions as to their relative origins."

Yet it is apparent that the critic was unaided by the information comparative study affords, as to the fundamental instincts upon which art is based. For he continues, "We have sufficient evidence to show that art had its primitive *raison d'être* in the love of decoration; and its first work, in every case in which we are able to study it, is not a representation of natural objects, but in decorative arrangements of line and color, geometrical in the most naïve cases, and later with unsymmetrical but rhythmical arrangements.

* Art as a Means of Expression. *The International Monthly*, Vol. I, No. 2.

Let us now consider the question of art and ornament from yet another side, and turning to a recent book by that industrious and intelligent English scholar, Professor A. C. Haddon,* review for a moment some of the results of applying the methods of the naturalist and biologist to the study of the arts of design. Mr. Haddon prefaces his classification of the incentives to artistic effort by the remark that the craving for decorative art having been common to mankind for many thousand years, it would be a very difficult task to determine its actual origin. The needs which have constrained man to art he groups under four heads: Art, Information, Wealth and Religion. Notwithstanding the fact that he places æsthetics, the study or practice of art for art's sake, for the sensuous pleasure of form, line and color, first on his list, he is constrained to admit that religion, the need of man to put himself into sympathetic relation with unseen powers has gathered unto it the foregoing secular triad. In his chapter on the application of biological deductions to the arts of design we find some interesting conclusions: that there is no spontaneous generation of design in savage art; that savages do not deliberately invent patterns, and that a design, no matter how simple, once started, is subject to vicissitudes analogous to those which beset the existence of any organism. One is impressed through Mr. Haddon's admirable work that mere objective comparison is in itself insufficient. The fundamental evolution we must consider is that of an underlying idea, which evolution, however, is intimately bound up with the symbol used for its expression. Referring to the variations of a design, he says: "While there is a certain amount of conscious selection, the variation as a whole of any design is an entirely unguided operation." This statement should be qualified with the information that variations are not necessarily accidental, and that the dominant idea, the underlying symbolism, often survives as a controlling and determining force long after it has ceased to be a conscious factor in mental processes.

In the first lecture in this course, Dr. Lightner Witmer called attention to the results of his laboratory experiments which furnished data for the explanation of the æsthetic choice of

* *Evolution in Art*. London, 1865. P. 4.

certain symbols on the basis of the limitations of perception common alike to man in all ages. I refer to this as another illustration of the many points of view from which we may approach this fundamental question of origins. As suggested in my preliminary remarks, we have become so habituated to ornament, as to regard it as a matter of course in our existence. It is so old, so universal, that we speak of love of it, with dress and decoration as among the fundamental passions of humanity. A more correct appreciation of its origin and significance imparts a new interest to our immediate surroundings, and justifies the claims of our science, that, while it finds its material chiefly among savage tribes and in remote ages, the principles it formulates may be equally applied to the explanation of the phenomena of our every day lives.



PLATE 22. Engraved Tablet, 21,841. Ohio.

COLLECTIONS AND PUBLICATIONS.

AMERICA.

UNITED STATES.

Mrs. Daniel G. Brinton has presented a small engraved sandstone tablet (Plate 22, 21,841), resembling the so-called "Cincinnati Tablet" presumably from a mound in Ohio, from the collection of the late Dr. Daniel G. Brinton.

CENTRAL AMERICA.

Mr. Charles B. Lamborn has presented a cast of a tablet from Palenque (21,888), which formed part of the collection of his brother, the late Dr. Robert H. Lamborn.

Three pottery stamps (21,830-31, 21,844), two terra-cotta heads (21,832, 21,845) bird's head (21,833), two animal heads (21,834-35), three ornamented fragments (21,836-38), and foot of vessel (21,839), from Honduras, have been presented by Dr. Federico Freund, through Dr. Edward C. Kirk.

ASIA.

THE FAR EAST.

CHINA.

A painted feather fan, *mò shin* (21,796) has been presented by Dr. Simon Flexner.

JAPAN.

A prehistoric bell (21,821) 22½ inches in height, Plate 23, has been deposited by Mr. Benjamin Smith Lyman. Mr. Lyman has kindly furnished the following note :

Bells like this, of various heights, from a couple of inches up to five feet, have been dug out of the ground in Japan, chiefly in the more central provinces and Shikoku, quite frequently since A. D. 669. None have ever been found on the surface of the ground, and none with any inscription, though all have varied ornamental marking. Their origin and use are not known. Professor E. S. Morse has suggested that they may have been incense-burners, arguing that the holes in the sides and the notches in the lower edge are for the passage of air ; but it has more commonly been supposed that the bells were hung as ornaments at the

eaves of the many stories of tower-shaped pagodas, dating, perhaps, from 1500 years, or more, ago. At the time of the earliest recorded discovery of one, it was already a wholly forgotten and unknown object, the relic of a long disused custom, and was then imagined to be an ornament of one of the numerous pagodas erected by King Asoka (about 250 B. C.). The absence of inscriptions pretty conclusively shows the bells to be older than any knowledge of writing in the country where they were made. The point of suspension seems to show some signs of wear. It appears likely that the bells were hung upon tall poles, the probable precursors of pagodas, as it was customary, in Corea, 2000 years ago, so to hang up drums and bells, doubtless with the design to drive away evil spirits by the noise made in the wind. The decay of the poles would account for the absence of any remains of a support for the bells; and in connection with their discovery there is no mention of the traces of even the foundation of a pagoda.

Mr. Lyman has also deposited a Japanese cast metal mirror (21,822), Plate 24, $25\frac{1}{8}$ inches in diameter, the face brilliantly polished, and the back bearing three armorial bearings, (two crossed feathers enclosed in a circle) and an inscription. The following note was furnished by the donor :

The mirror is like the mirror displayed in every Shinto temple, and said to be an emblem of purity, but more probably a relic of sun-worship. Such mirrors are sometimes suspended by a cord, and that accounts for the two small holes in the upper part of the rim. The crossed feathers are the badge of the great prince, or Daimiyō of Aki. The prince may have presented the mirror to a Shinto temple; and the temple, or its keeper, may later have fallen into need of money. That would account for finding the mirror in an "old furniture shop," or "curio shop," at Akabane, Tokio, about 1876.

The inscription on the back of the mirror gives the maker's names and title, and reads as follows :

Ten ka ichi	Kikuta	Mimasaka [no] Kami	Kiyohisa
First under heaven,	Kikuta,	Lord of Mimasaka,	Kiyohisa
<u>A vainglorious boast.</u>		Family	Nanori.
	name.	Honorary title.	(personal name).

Mirror makers, like swordsmiths, sometimes had such honorary titles.

SYRIA.

A bridle and head furniture (21,752), for a horse has been presented by Miss M. M. Preston Taylor, through Dr. Talcott Williams.



PLATE 23. Prehistoric bell. 21,821. Height, 22½ inches. Japan.

TURKEY.

Mr. Benjamin Smith Lyman presented a copy of the *Tougra* of Sultan Abdul Aziz (21,840) concerning which he sends the following note:

The use of the extended hand (p. 26, [Num. & Antiq. Proc., 1892-98]) as a magical symbol, reminded me of the impression of a hand on the internal wall of St. Sophia at Constantinople. Tradition calls it the impress of the bloody hand of Mahmoud the Conqueror, when he took possession of the Church in the name of Islam. But it is too large to have been done by a man's hand, and has been religiously kept up ever since. Was it in any way connected with the superstition referred to? The *Tougra*, or monogram of the sultan, is a rather rude caligraphic rendering of this hand, it is said. I am sending you the *Tougra* of Sultan Abdul Aziz by this post. It is a group of Arabic characters, so placed, and so arbitrarily modified, as is the custom in ornamental inscriptions, that it is exceedingly difficult to decipher, more especially as some of the characters are read twice in different words. The long, sabre-shaped characters representing the fingers are alifs and lams (a's and l's) and the whole reads thus: *Sultan el bahreynwa kakhhan el bahreyn, Sultan Abdul Aziz Khan, ben Sultan Mahmoud Khan*. That is, Sultan of the two lands, lord of the two seas, Sultan Abdul Aziz Khan, son of Sultan Mahmoud Khan. The *tougra* is alike for all sultans, save in the lower part, containing the proper names of the sultan and his father, and is famous as a specimen of caligraphy.—From a private letter of Edward Gilbertson, Esq., Ilfracombe, Devonshire, England, March 17, 1900.

AFRICA.

An Ashantee medicine man's staff (21,823) of dark polished wood, highly carved, 48½ inches in length has been presented, by Dr. S. Weir Mitchell.

EUROPE.

Mr. Charles B. Lamborn has presented a series of fifty casts of European archæological objects (21,846-21,881, 21,884) of the Palæolithic, Neolithic and Bronze periods, which formed part of the collection of his brother, the late Dr. Robert H. Lamborn.

Two lava charms (21,824-5) from Naples, one in the form of a skull, and the other a hand holding a skull, have been presented by Mr. David Milne.

Mrs. William V. McKean has presented the following objects of art as a memorial of her husband, the late William V. McKean (A. B., A. M., Pennsylvania, 1862-1865; Trustee of the University of Pennsylvania, 1895-1897).

- 21,799. French bronze, on pedestal, Apollo Belvidere.
- 21,800. French bronze, on pedestal, Venus de Medici.
- 21,801. French bronze, Ulysses with bow.
- 21,802. French bronze, Venus.
- 21,803. French bronze, gilded, Benvenuto Cellini.
- 21,819. French bronze, gilded, Bernard Palissy.
- 21,804. Bronze vase, gilded. Body ornamented with two masks, serpent handles, on pedestal with four sphinxes.
- 21,805. Bronze group, eagle and crane. By Barye.
- 21,806. Pair of bronze vases with classical figures in relief.
- 21,807. French bronze, model of Obelisk of Luxor, Paris.
- 21,808. French bronze, model of Column Vendôme.
- 21,809. French bronze, model of Arc de Triomphe.
- 21,810. Pair of bronze candelabra. Tripods supporting tree, each with three lamps suspended by chains.
- 21,811. Marble model of obelisk of the Lateran. Rome.
- 21,812. Marble model of column of Phocas. Rome.
- 21,813. Marble models (2) of columns of temple of Vesta. Rome.
- 21,814. Pair of porphyry tripods, with bronze rams' heads and feet.
- 21,815. Pair of marble vases.
- 21,816. Vase of serpentine. Two lizards as handles.
- 21,817. Vase of serpentine. Swans as handles.
- 21,818. Marble statue. Dying Gaul, commonly known as the "Dying Gladiator."
- 21,820. Large urn of oriental alabaster, on pedestal.



PLATE 24. Metal Mirror. 21,822. Diameter, $25\frac{1}{2}$ inches. Japan.

SPECIAL COLLECTIONS.

Fans.—Mrs. Joseph Drexel has made the following additions to her collection:

21,826. Saxony, Dresden, 18th century. Folding ivory fan, *brisé*, gilded and painted, with central panel with figures and medallions in Chinese style.

21,827. Samoa. Oval fan, *ili*, of twisted palmleaf with split white wood handle.

Games.—A set of gambling-cups (21,828) consisting of four cylinders of the root of the cotton wood, 2 inches in diameter, and $3\frac{1}{2}$ inches in height, from the Tusayan (Moki) Indians of Arizona, have been presented by Mr. Thomas V. Keam, of Keam's Cañon, Arizona.

Three kicking sticks (21,829) for the game of *Ti-kwa-we*, from Zuñi, N. M., have been presented by Mr. F. W. Hodge (see the *American Anthropologist*, III, 227).

Two packs of Hindu playing cards (21,797-98), have been presented by Dr. J. V. Ingham.

A pack of playing cards (21,842) with portraits of generals and other personages of the Spanish-American war has been obtained by purchase.

Numismatics.—A bronze medal of Louis Philippe (Cathédrale de Chartres) has been presented by Dr. S. Weir Mitchell.

Mrs. William H. Miller has presented the following medals: Washington Allston, bronze, size 40; Centennial Medal, 1876, bronze, size 36.

Mr. E. W. Thwing has deposited a collection of Chinese, Japanese, Annamese and Korean coins, comprising 4,175 specimens, exclusive of duplicates.

The following list gives a general idea of the collection:

Ancient Chinese coins of various shapes, B. C. 700 to 200.

Uninscribed "Bridge" money, 3 specimens.

Uninscribed largest "spade" money, 1 specimen.

Ancient "weight" money, 20 specimens.

Ancient "spade" money, 20 specimens.
 Smallest size "spade" money, 1 specimen.
 Old *Pu* money, 103 specimens.
 Old *Pu* money, large size, 4 specimens.
 Old *Pu* money, pointed foot, 44 specimens.
 Old *Pu* money, pointed foot, round shoulders, 1 specimen.
 Large "knife" money, 12 specimens.
 Small "knife" money, 49 specimens.
 Ancient round money, half *Leung*, key-shaped, 138 specimens.
 Other round, Sung Dynasty, 305 specimens.
 Sung Dynasty, 240 specimens.
 Southern Sung Dynasty, 208 specimens.
 Liao, Kiu and Yuen Dynasties, 73 specimens.
 Ming Dynasty and rebels, 220 specimens.
 Tsing or present Dynasty and Tai Ping, 660 specimens.
 Modern silver, new mints, 17 specimens.
 Korean coins, 1,565 specimens.
 Japanese coins, } 240 specimens.
 Annamese coins, }
 Charms and amulets, 241 specimens.

LECTURES.

A course of free public lectures illustrated by objects in the Museum, is being delivered in the Widener Lecturer Hall of the Museum on Wednesday afternoons at 4 p. m., as follows:

April 4. Professor Lightner Witmer, "Present Day Survivals of Primitive Modes of Thought and Feeling."

April 11. Mr. Stewart Culin, "The Origin of Ornament."

April 18. Dr. A. T. Clay, "Recent Excavations in Babylonia."

April 25. Dr. William N. Bates, "Coinage of the Ancient Greeks."

May 2. Professor Hugh A. Clarke, "The Genesis of Musical Instruments."

May 9. Dr. Simon Flexner, "Impressions of the Philippine Islands."

May 16. Professor John B. McMaster, "Household Life of Women in the Colonial Period."

LIBRARY.

The following are the most important acquisitions since the last issue of the BULLETIN.

Descripción Historia y Exposición del Códice Pictórico de los Antiguos Náuas que se conserva en la Biblioteca de la Cámara de Diputados de Paris. Por Francisco Del Paso y Troncoso. Gift of the *Author*.

Sveriges och Svenska, Konungahusets minnespenningar. 2 vols. Stockholm, 1873-74.

Minnespenningar öfver enskilda Svenska män och qvinnor. Af Bros. Emil Hildebrand, 1860.

Anglosachsiska Mynt e Svenska Kongliga Mynikabvinetter. Af Bros. Emil Hildebrand. Stockholm, 1881.

Gifts of *The Royal Academy of Belles Letters, History and Antiquities*. Stockholm, Sweden.

A description of the Medals of Washington. By James Ross Snowden. Philadelphia, 1861. Gift of Mrs. William H. Miller.

Mr. Robert C. H. Brock has deposited the following works on Numismatics:

Proceedings of the Numismatic Society, 1840-1860. 3 vols. London.

The Numismatic Journal, Vol. 1-2, 1836-1838. London.

The Numismatic Chronicle, 1838-1895. 55 vols. (bound as 45). London.

The Coin Collectors' Journal, 1875-1886. 11 vols. (bound in 7).

The Coin Journal, Lancaster, Pa. Vol. 1, Nos. 1, 2, 1878; Vol. I, Nos. 1, 2, 3, 4, 5, 1879-80; Vol. 2, Nos. 1, 2, 1880.

Steigerwalt's Coin Journal. Vols. 1, 2, 1883, 1884.

Les Images presque de tous les Empéreur depuis C. Julius Cæsar jusques à Charles V. Par Hubert Gholtz de Wirtzburg. Anvers, 1557.

Alter and Neuer Münz-Schlüssel. Von Leonhard Wilibald Hoffmann. Frankfurt und Leipzig, 1684.

Alter und neuer Münz-Schlüssel. Von Leonhard Wilibald Hoffmann. Nürnberg, 1692.

Das neueröffnete Münz-cabinet. Von D. Johann Friedrich Joachim. 2 vols. Nürnberg, 1761.

Historische Münzbelustigungen. Von Johann Gottfried Bernhold. 22 vols. in 19. Nürnberg, 1788.

A view of the Gold and Silver Coins of all Nations. By Js. Ede. London, 1808.

Tables containing the assays, weights and values of the Principal Gold and Silver Coins of all countries. Philadelphia, 1822.

A Numismatic Manual. By John Yonge Ackerman. London, 1840.

A Manual of Gold and Silver Coins of all Nations. By Jacob R. Eckfeldt and William E. Du Bois. Philadelphia, 1842.

Ancient Coins of Cities and Princes. Hispania, Gallia, Britannia. By John Yonge Ackerman. London, 1846.

Notice sur le Cabinet Monétaire de S. A. le Prince de Ligne. Par C. P. Serrure. Gand, 1847.

New Varieties of Gold and Silver Coins. By Jacob E. Eckfeldt and William E. Du Bois. New York, 1851.

Coins, Medals and Seals. By W. C. Prime. New York, 1861.

The Coin Chart Manual (three copies). New York, 1856, 1859, 1861.

A list of Medals, Jettons, Tokens, etc., in connection with Printers and the Art of Printing. By William Blades. London, 1869.

The Coin Book. Philadelphia, 1873.

Kennedy's Coins of the world. Pam. n. p. n. d.

The Coinage of the World; Ancient and Modern. By Geo. D. Matthews. New York, 1876.

Die Jules Fonrobert'sche Sammlung überseeischer Münzen und Medaillen. Berlin, 1877.

Dye's Coin Encyclopedia. Philadelphia, 1883.

An introduction to the Copper Coins of Modern Europe. By Frank C. Higgins. London, 1892.

The Coinage of the European Continent. By W. Carew Hazlitt. London, 1893.

Collection de Monnaies et Médailles de l'Amérique du Nord de 1652 à 1858. Par Alexandre Vattemare. Paris, 1861.

A Monograph of the Silver Dollar. By J. L. Riddell, M. D. New Orleans, 1845.

An Historical Account of American Coinage. By John H. Hickcox. Albany, 1858.

The American Numismatic Manual. By Montroville Wilson Dickeson, M. D. Philadelphia, 1860.

A Practical Guide to the Detection of all Counterfeit, Spurious, Raised, Altered and Photograph Bank Notes. By T. H. Gilbert. Philadelphia, 1861.

A History of the Bills of Credit or Paper Money issued by New York from 1709 to 1789. By John H. Hickcox. Albany, 1866.

Heath's Government Counterfeit Detector. Boston, 1870.

The Early Coins of America. By Sylvester S. Crosby. Boston, 1878.

Varieties of the Copper Issues of the United States Mint in the year 1794. By Edward Maris, M. D. Philadelphia, 1869.

Monograph of United States Cents and Half Cents. By Ed. Frossard. Irvington, N. Y., 1879.

An Arrangement of United States Copper Cents, 1816-1857. By Frank D. Adams. Vineland, New Jersey, 1883.

J. A. Bolen's Medals, Cards, and Fac-similes. By Edwin L. Johnson. Springfield, 1882.

A Classification of the Early Half-dimes of the United States. By Harold P. Newlin. Philadelphia, 1883.

The Cents of the United States. By Francis Worcester Doughty. New York, 1890.

A description of ancient and modern coins in the Cabinet Collection at the Mint of the United States. By James Ross Snowden, Philadelphia, 1860.

A brief description of the Mint of the United States. Philadelphia, 1877.

Illustrated History of the United States Mint, Philadelphia, 1890.

An Index of the coins and medals of the Cabinet of the Mint of the United States, at Philadelphia. Philadelphia, 1895.

Instructions and Regulations in relation to the transaction of business at the Mints and Assay offices of the United States. Washington, 1888.

A collection of all the United States Statutes, in reference to the coinage of money. Philadelphia, n. d.

Coins, Tokens and Medals of the Dominion of Canada. By Alfred Sandham. Montreal, 1869.

Atlas Numismatique du Canada. Par Jos. Leroux, M. D. Montreal, 1883.

Vade Mecum de Collectionneur. Par Jos. Leroux, M. D. Montreal, 1885.

Le Médaillier du Canada. Par Jos. Leroux, M. D. Montreal, 1888. With supplement, 1890.

Le Collectionneur Illustré des Monnaies Canadiennes. Par P. N. Breton. Montreal, 1890.

Mexican Imperial Coinage. By Benjamin Betts. Boston, 1899.

Descriptive Catalogue of Australian Tradesmen's tokens. By C. W. Stainsfield. London, 1883.

A Discourse of Medals, ancient and modern. By J. Evelyn, Esq., S. R. S. London, 1697.

Nummi Anglici et Scotici cum aliquot Numismatibus recentioribus. Collegit Thomas Pembrochia et Montis Gomerici Comes. (Plates.) n. d.

Chronicon Preciosum; or, an account of English Gold and Silver Money. By Bishop Fleetwood. London, 1745.

Medals, Coins, Great Seals, Impressions from the elaborate works of Thomas Simon. By George Vertue. London, 1753.

A series of above two hundred Anglo-Gallic or Norman and Aquitain Coins of the Antient Kings of England. By Andrew Coltee Ducarel, LL. D. and F. S. A. London, 1757.

English Coinage, Silver and Gold. By Martin Folkes. London, 1763.

Tables of English Silver and Gold Coins. By Martin Folkes. 2 vols. London, 1763.

A view of the Silver Coin and Coinage of England.

A view of the Gold Coinage of England.

A view of the Copper Coinage of England.

Miscellaneous views of the Coins struck by English princes in France.

A view of the origin, nature, and use of Jettons or Counters.

A view of the Silver Coinage of Scotland. By Thomas Snelling. London, 1762-1774.

The Medallic History of England. (By Pinkerton.) London, 1802.

Simon's Essay on Irish Coins. Dublin, 1810.

Annals of the Coinage of Great Britain and Its Dependencies. By Rev. Rogers Ruding. 6 vols. London, 1819.

Annals of the Coinage of Great Britain and Its Dependencies. By the Rev. Rogers Ruding. 3 vols. London, 1840.

Handbook of English Coins. By Llewellynn Jewitt. London, n. d., (1840?).

The Silver Coins of England. By Edward Hawkins, F. R. S., F. A. S., etc. London, 1841.

The Coins of England. (By H. N. H.) London, 1846.

Coins of the Romans Relating to Britain. By John Yonge Ackerman. London, 1845.

Tradesmen's Tokens Current in London. By John Yonge Ackerman. London, 1849.

A Descriptive Catalogue of London Traders' Tavern and Coffee-House Tokens. By Jacob Henry Burns. London, 1855.

Tokens Issued in the Seventeenth Century in England, Wales and Ireland. By William Boyne, F. S. A. London, 1858.

Coins and Tokens of the English Colonies. By Samuel Smith, Jr. London, 1860.

The Silver Tokens of Great Britain and Ireland. By William Boyne, F. S. A. London, 1866.

Batty's Catalogue of the Copper Coinage of Great Britain. 2 vols. Manchester, 1868, 1877.

Currency of the Isle of Man. By Charles Clay, M. D. Douglas, 1869.

Numismata Cromwelliana. By Henry William Henfrey. London, 1877.

A Guide to the Coins of Great Britain and Ireland. By Major W. Stewart Thornburn. London, n. d. (1883?)

Gold War Medals. By J. Lawson Whalley. Lancaster, 1888.

The Coins and Tokens of the Possessions and Colonies of the British Empire. By James Atkins. 1 vol. London, 1889.

English Coins and Tokens. By Llewellynn Jewitt, F. S. A. London, 1892.

The Gold Coins of England. By Robert Lloyd Kenyon. London, 1894.

Handbook of the Coins of Great Britain and Ireland in the

British Museum. By Herbert A. Grueber, F. S. A. London, 1899.

Les Médailles Gallo-Gaéliques. Par le Baron de Donop. Hanover, 1838.

Médailles sur les Principaux Evénements du Règne de Louis le Grand. Quarto. Paris, 1702.

Médailles sur les Principaux Evénements du Règne Entier de Louis le Grand. Folio. Paris, 1723.

Catalogue des Médailles relatives aux événements des années 1789 à 1815.

The Napoleon Medals. Edited by Edward Edwards. London, 1837.

Histoire Monétaire des Colonies Françaises. Par E. Zay. Paris, 1892.

Description des Monnaies Espagnoles. Par Joseph Gaillard. Madrid, 1852.

Tratado de Numismática Arábigo-Española. Por Don Francisco Codera y Zaidin. Madrid, 1879.

Numismata Pontificum Romanorum. By A. P. Philippo Bonanni, S. J. 2 vols. Rome, 1699.

Coins of the Grand Masters of the Order of Malta. By Robert Morris, LL. D. Boston, 1884.

Die Münzen der Republik Bern. Von Carl Lohner. Zürich, 1846.

Della Moneta Antica di Genova. Di Gio Christoforo Gandolfi. Genova, 1841.

Der Coopliede Hanbouckin. Ghend. 1544.

Sylloge Numismatum Elegantiorum. Opera ac Studio Johannis Jacobi Luckii. Argentinae. 1620.

Histoire Métallique de la République de Hollande. Par M. Bizot. Paris, 1687.

Description du cabinet de jetons historiques frappés dans les Pays-Bas, formé par feu. M. L. de Coster. Bruxelles, 1883.

Thomae Broderi Bircherod Jac. F. Specimen Antiquæ rei Monetarie Danorum. Hafniæ, 1701.

Das älteste Münzwesen Norwegens. Von C. A. Holmboe. Berlin, 1846.

Le Médailleur de Pologne. Par le Cte Edouard Raczynski. 2 vols. Berlin, 1845.

Decouverte à Glebokie des Monnaies Polonaises du Moyen-

Age. Par l'Abbé le Chauvine Ignace Polkowski. Genesen, 1876.

Monnayes Russes. Par le Général T. F. de Schubert. 2 vols. Leipzig, 1857.

Table of Russian Coins of the last two Centuries. Compiled by Christian! Gil, St. Petersburg, 1883. (Russian Text with Ms. English translation.)

Dubia de Minnisari, aliorumque Armeniæ Regum. Per Erasmum Frœlich, S. J. S. Vienne, 1754.

Catalogue des Monnaies Byzantines que composent la Collection de M. Soleirol. Metz, 1855.

Numi Mohammedani, Fas. I. By Ignatius Pietraszewski. Berlin, 1843.

Numi Cufici Regii Numophylacii Holmiensis. Dir Carolus Johannes Tornberg. Upsaliae, 1848.

The Initial Coinage of Bengal. By Edward Thomas. Hertford, 1866.

The Chronicles of the Pathan Kings of Delhi. By Edward Thomas. London, 1871.

Catalogue of Oriental Coins in the British Museum. Vols. 1-8. London, 1875, 1883. Additions, 2 vols. 1890.

The Currencies of the Hindu States of Rájputána. By William Wilfred Webb, M. B. Westminster, 1893.

The History of the Moghul Emperors of Hindustan, illustrated by their coins. By Stanley Lane-Poole. Westminster, 1892.

Catalogue of the Arabic Coins in the Khedivial Library at Cairo. By Stanley Lane-Poole. London, 1897.

Numismatic Illustrations of the Narrative Portions of the New Testament. By John Yonge Akerman, F. S. A. London, 1846.

Coins of the Jews. By Frederic W. Madden, M. R. A. S. Boston, 1881.

Ku Ts'ieun Hwui. Collection of ancient coins. (Chinese text with plates.) 62 books in 16 vols.

Catalogue of Chinese coins, from the seventh century B. C., to A. D. 621, including the series in the British Museum. By Terrien de Lacouperie. London, 1892.

The Currency of the Farther East. By J. H. Stewart Lockhart, F. R. G. S., M. R. A. S. 3 vols. Hongkong, 1895.

Catalogue of Coins and Medals, the property of Mortimer Livingston Mackenzie, Esq. New York, 1869.

Catalogue of a private collection of Roman, Greek, English, Scotch, American, Canadian and miscellaneous gold, silver, copper coins and medals. New York, 1871.

Catalogue of gold, silver and copper coins and medals of S. W. Chubbuck. Philadelphia, 1873.

A descriptive catalogue of the Seavey Collection of American Coins. Cambridge, 1873.

Catalogue of Professor Anthon's Numismatic Cabinet. New York, 1879-1884.

Catalogue of the collection of American Coins and Medals of the late Charles I. Bushnell, Esq., New York, 1882.

Catalogue of the collection of Coins, Medals, Tokens and Currency formerly owned by the late Robert Coulton Davis, Ph. G. New York, 1889.

Catalogue of Coin Sales: G. E. Hart, Dreier, Deats, Saltmarsh, Hooper; one volume; various dates.

Catalogue of Coin Sales: Cogan, Woodward, Bushnell, Cleneay; one volume; various dates.

Catalogues of Coin Sales: McCoy, Mickley, Ex-Governor Packer, Cauffman, Oliver, Clay; one volume; various dates.

The Standard Coin Catalogue. New York, 1880.

Scott's Standard Catalogues. No. 4. Gold and Silver Coins, New York, 1890.

Historical Researches into the Politics, Intercourse, and Trade of the Principal Nations of Antiquity. By R. H. L. Heeren; three volumes. Oxford, 1833.

EXCHANGES.

An exchange of publications has been made with the following Societies and Institutions since the last issue:

Museum of Fine Arts, Boston.

Wyoming Historical and Geological Society.

In Memoriam.

FRANK HAMILTON CUSHING.

MR. FRANK HAMILTON CUSHING died in Washington, April 10, 1900, in the forty-third year of his age. Although officially connected with the Bureau of American Ethnology, he rendered many important services to this institution, and through an arrangement with the Bureau, conducted a joint expedition for the two bodies.

In 1895, the Museum acquired as a loan from Mr. C. D. Hazzard the large collection of prehistoric antiquities from the cliff dwellings of Montezuma county, Colorado, which was exhibited at the Columbian Exposition. Mr. Cushing had made careful studies of the collection at Chicago, and succeeded, through his intimate knowledge of the Pueblo Indians, in making important identifications both of the use and symbolism of many of the specimens. Upon the installation of the collection in our Museum, he continued these studies and materially aided in classifying and arranging the exhibit. The collection, since purchased and presented to the Museum by Mrs. Phebe A. Hearst, owes much of its value to the information which Mr. Cushing contributed. From 1893, down to the time of his death, he was engaged with Mr. Culin in a systematic comparative study of the games of the American aborigines, contributing several chapters to the general work, which Mr. Culin now has practically ready for publication. This will be issued by the Bureau of American Ethnology. At the same time he constantly aided in the identification of our ethnological material.

In May, 1895, he was sent by the University to Florida, to make an examination of a site at Marco, where Lieutenant-Colonel C. D. Durnford had reported finding significant prehistoric material. The result of this survey led to another expedition to the same locality in the joint interest of the Bureau of American Ethnology and the University, at the expense of Mrs. Phebe A. Hearst and Dr. William Pepper.

Some account of the remarkable collections made at this time appear elsewhere in this BULLETIN. In addition to the explorations at Marco, Mr. Cushing excavated two mounds at Tarpon Springs, from which he obtained an especially valuable collection of crania, pottery and other remains. These collections, under the arrangement between the two institutions, will be divided between the National Museum and the University. A preliminary report of the expedition, of which copies can be obtained from the Free Museum, was published by the American Philosophical Society. The manuscript of the final account, together with the illustrations, was left in a condition for publication by Mr. Cushing at the time of his death, and will appear in one of the forthcoming annual reports of the Bureau of American Ethnology.

While residing in Philadelphia engaged on this manuscript, Mr. Cushing entered upon a comparative study of the ceremonial stone implements of the Indians, based upon the collections in the University Museum, in the light of his Florida discoveries. Some of the results were announced by him at the meeting of the Numismatic and Antiquarian Society on December 20, 1897, when he elucidated the origin and significance of the so-called gorget and banner-stones. He subsequently included the pipe and the calumet in this survey. It is believed that both the manuscript and illustrations are sufficiently advanced for publication, in which case they will appear in one of the reports of the Bureau. A synoptical collection, arranged by Mr. Cushing, and illustrating his theory of development of the banner-stone, gorget and calumet is now on exhibition at the Free Museum.

Mr. Cushing's peculiar information and attainments are too well known to require mention here. He was a man of rarely sympathetic personality, courteous, warm-hearted and generous. His early death will be lamented, not only by his scientific associates, but by every man, woman and child with whom he ever came in intimate contact.

NEW MEMBERS OF THE DEPARTMENT OF ARCHÆOLOGY AND PALEONTOLOGY.

The following have been elected to membership in the
Department of Archæology and Paleontology of the University
of Pennsylvania.

Acker, Mr. Finley
Addicks, Mr. J. Edward
Allan, Rev. W. T.
Allerton, Mr. Samuel W.
Anderson, Dr. Winslow
Austin, Mr. Esmonde H.
Austin, Mr. James S.
Austin, Mr. William L.
Avil, Mr. J. Howard

Barker, Mr. Abraham
Barr, Mr. Thomas C.
Bateman, Mr. A. F. C.
Beaver, Mr. James A.
Beeber, Mr. Dimmer
Benson, Mr. G. S., Jr.
Benson, Rev. Louis F.
Biddle, Mr. A. J. Drexel
Biddle, Mrs. Henry J.
Biddle, Mr. Louis A.
Black, Mr. Henry S.
Blakiston, Miss Emma
Blakiston, Miss Mary
Bodine, Mr. Samuel T.
Boies, Mr. H. M.
Bowen, Mr. Ezra
Bowman, Mr. Wendell Phillips
Brazier, Mr. Joseph H.
Brice, Mr. E.
Brock, Mr. Arthur
Brock, Mr. Charles H.
Brock, Mr. John W.
Bromley, Mr. Joseph H.
Brooke, Mr. Hunter
Brown, Mr. James F.
Brown, Mrs. W. Wallace
Bruhl, Dr. Gustav
Buchanan, Mr. R. George
Burnham, Miss Mary A.
Bushnell, Mr. Joseph

Campbell, Mrs. Mason
Carr, Mr. William Wilkins
Carter, Mrs. William T.
Catherwood, Mrs. H. W.
Chauncey, Mr. Charles
Clapp, Mr. B. Frank
Clark, Mr. Charles D.
Clark, Mr. Clarence M.
Clark, Mr. Walton
Clarke, Mr. Charles H.

Clayton, Miss Ella M.
Coates, Mr. William M.
Cobb, Mrs. Dewey A.
Cohen, Mr. Charles J.
Coleman, Mr. Robert, Jr.
Colket, Mr. George H.
Colton, Mr. S. W., Jr.
Cooke, Mr. Jay, Jr.
Corbin, Mr. E. A.
Cox, Mr. James S.
Coxe, Miss Mary Clapier
Cramp, Mr. Samuel H.
Cramp, Mr. Walter S.
Craven, Mr. John J. R.
Curtis, Mr. George M.

Daniel, Mr. Charles A.
Davis, Mr. G. Harry
Deans, Mr. John Sterling
Devlin, Mr. Thomas
Dillingham, Mr. Conway
Dobbins, Mr. Murrell
Dodge, Mr. James M.
Dolan, Mr. Thomas J.
Dornan, Mr. Robert
Douglass, Mr. J. Walter
Dreifus, Mr. Jacob S.
Drexel, Miss Josephine W.
Dutilh, Miss

Edmunds, Mr. George F.
Ennis, Mr. A. J.
Evans, Mr. Charles

Faries, Mr. Edgar Dudley
Faries, Mrs. Edgar Dudley
Finckel, Mr. M. L.
Fisher, Mr. S. Wilson
Fitler, Mrs. Edwin H.
Forney, Col. James
Foulke, Miss Rebecca Mulford
Fox, Mr. C. F.
Fox, Mrs. Samuel M.
France, Mr. Wilmer Cave
Francis, Rt. Rev. Joseph M.
French, Mrs. Morris S.
Frishmuth, Mrs. Elizabeth P.

Galloway, Mr. William
Gatchel, Mr. H. A.
Gerhard, Mr. John S.
Gerson, Dr. T. Perceval

Gibbs, Mr. W. W.
Gibson, Miss M. K.
Godfrey, Mr. Benjamin Granger
Graham, Rev. Robert
Gratz, Mrs. Frances
Graves, Mr. Virginius F.
Green, Mr. Alfred
Gribbel, Mr. John
Grieb, Mr. William G.
Griscom, Mr. C. A., Jr.

Hacker, Mrs. Charles
Hamer, Mr. J. W.
Hamm, Mrs. Walter C.
Hance, Mr. A. M.
Hance, Mr. Joseph C.
Harris, Mrs. Emma C.
Harrison, Mr. Alfred C.
Hartzell, Dr. M. B.
Haupt, Mr. Herman
Haupt, Mr. S. B.
Hebard, Mr. Charles
Heintzelman, Miss Mary L.
Helme, Mr. William E.
Hemphill, Miss M. C.
Hempstead, Mr. William O.
Hills, Miss Annie Elizabeth
Hipple, Mr. Frank K.
Hood, Mr. James E.
Hoopes, Mr. Dawson
Hooven, Mr. J. Henry
Hopkinson, Mr. Oliver
Hopper, Mr. W. G.
Howe, Mr. F. P.
Howe, Mrs. James Henry
Hutchinson, Mr. Emlen
Hyneman, Mr. Samuel M.

Irwin, Mrs. S. A.

James, Dr. Bushrod Washington
Jefferys, Mr. C. P. B.
Jenks, Mr. Horace H.
Jonas, Mr. Henry
Jonas, Mr. Herman
Jones, Dr. Jonathan J.
Judd, Dr. L. D.
Justice, Mr. William W.

Keen, Miss Dora
Keen, Mr. Edwin F.
Kelly, Mr. Charles E.
Kindred, Mr. C. F.
King, Miss Hetty M.
Kirkbride, Mrs. Thomas S.
Koons, Mr. R. J. W.
Korndoerfer, Dr. Augustus
Krewson, Mr. Edmund F.
Krumbhaar, Mr. Alexander

Laws, Mr. Samuel Spahr
Leisenring, Mr. A. C.
Lewis, Dr. Bertha
Lewis, Mr. Howard W.
Lewis, Mr. John Frederick
Lewis, Rev. William P.
Lindsay, Mr. James G.
Lippincott, Mr. H. G.
Lippincott, Mrs. Joshua
Lippincott, Mr. Walter
Lit, Mr. Jacob D.
Lloyd, Mr. W. S.
Loder, Mr. C. G. A.
Logan, Mr. A. Sydney
Longacre, Mr. James M.
Longshore, Dr. William R.
Lovejoy, Mr. Arthur B.
Lowber, Miss E. W.
Lucas, Mr. William H.
Lukens, Mr. Jawood

McCloud, Mr. Charles M.
McCullagh, Miss Mary
McDowell, Mr. John A.
McIntyre, Mr. S. Maxwell
McManes, Mrs. James
McMichael, Mrs. Walter
Manning, Miss Katharine S.
Massey, Mr. Henry V.
Masters, Mr. David
Merchant, Mr. Clarke
Miller, Mr. Leslie W.
Milne, Mr. David
Milne, Mrs. Francis Forbes
Mitchell, Mrs. Charles L.
Mitcheson, Mrs. MacGregor J.
Mohr, Mr. James N.
Moore, Mr. Clarence B.
Moore, Dr. Edward K.
Morris, Mrs. Charles Ellis
Moulton, Mr. R. G.
Müller, Mr. George K.
Munyon, Mr. J. M.
Murphy, Miss Helen L.
Murta, Mr. John P.
Musser, Dr. J. H.

Nevin, Rev. Charles W.
Norris, Mrs. H. P.
Norton, Dr. Albert E.

Ottinger, Mr. James J.
Otto, Mr. Charles W.
Otto, Miss Elisa

Page, Mr. Harlan
Paethorpe, Miss C. A.

Passmore, Mr. John A. M.
 Patterson, Mr. T. H. Hoge
 Peabody, Mr. Robert Singleton
 Pepper, Mr. John W.
 Pepper, Mrs. William
 Perot, Miss Annie S.
 Perot, Miss Elizabeth W.
 Peterson, Mr. Albert E.
 Pfahler, Mr. W. H.
 Phillips, Mr. T. Bennett
 Piersol, Dr. George A.
 Platt, Mr. Charles
 Potter, Mr. H. C.
 Potter, Mr. Thomas, Jr.
 Potts, Mr. Francis L.
 Powell, Mr. G. Washington
 Powers, Mr. Thomas Harris

Ragatz, Mr. John H.
 Rawle, Mr. Francis
 Reed, Mr. Joseph P.
 Reeves, Mr. Paul S.
 Reilly, Mr. John
 Remington, Mr. Joseph P.
 Riebenack, Mr. Max
 Rieger, Mr. George
 Ringwalt, Mr. John L.
 Roberts, Dr. John B.
 Robinson, Mr. Edward Moore
 Robinson, Mr. W. S.
 Roelofs, Mr. Henry H.
 Rose, Mrs. W. F.
 Rothermel, Mr. P. F., Jr.
 Roydhouse, Mr. George W.
 Ruschenberger, Lieut. C. W.

Sailer, Mr. T. H. P.
 Sauter, Mr. William F.
 Schemm, Mr. Peter A.
 Schermerhorn, Mr. C. Howard
 Schmidt, Mr. Frederick W.
 Scott, Mrs. John
 Seeler, Mr. Harrison G.
 Sellers, Mr. John, Jr.
 Sewell, Mr. W. J.
 Shapleigh, Mr. Waldron
 Sherborne, Mr. Thomas P., Jr.
 Shinn, Mr. James T.
 Shinn, Mr. John Haseltine
 Shober, Mr. Samuel L.
 Shoemaker, Dr. George Erety
 Simmons, Miss Mary E.
 Sinkler, Dr. Wharton
 Sinnott, Mr. Joseph F.
 Smith, Mr. Charles
 Smith, Mrs. J. Frailey
 Smith, Mr. W. Hinckle

Sommer, Mr. Harry B.
 Spackman, Mr. Samuel
 Sparhawk, Mr. Charles Wurts
 Spiegel, Mr. Charles A.
 Steel, Mr. Henry M.
 Steel, Mr. William G.
 Stern, Mr. Edward
 Stern, Mr. Simon A.
 Sterrett, Mr. Joseph E.
 Stevenson, Miss Anna P.
 Stewardson, Mr. Thomas
 Stoever, Miss Marie

Tafel, Mrs. Anna A.
 Teller, Mr. Benjamin F.
 Terry, Mr. Frank A.
 Thomas, Dr. J. D.
 Thomas, Mr. Percival
 Thomas, Mr. Robert C.
 Thomson, Mrs. J. Edgar
 Tilge, Mr. Jesse A.
 Tobey, Mr. Frank R.
 Tomkins, Rev. Floyd W.
 *Triebls, Mr. Charles H. R.
 Trumbull, Mr. C. G.
 Turnbull, Mr. Frederick
 Tustin, Mr. Ernest Leigh

Van Rensselaer, Mr. A.
 Van Sciver, Mr. J. B.
 Vauclain, Mr. S. M.
 Vaux, Miss Elizabeth Waln
 Vollrath, Mrs. A. J.

Wainwright, Mr. Joseph R.
 Watkinson, Mr. George
 Watson, Miss Eva L.
 Weightman, Mr. Aubrey H.
 Weightman, Miss Bertha C.
 Wenzell, Mr. S. S.
 Westbrook, Dr. Henrietta Payne
 Wharton, Mr. W. Moore
 Wheeler, Mrs. Charles
 Whelen, Mr. Charles S.
 Whitaker, Rt. Rev. O. W.
 Whiteley, Mr. George
 Whitney, Mr. W. Beaumont
 Wilbur, Mr. W. N.
 Williams, Mr. Henry S.
 Winsor, Mr. Henry
 Winsor, Mr. W. D.
 Wolf, Mr. Edward
 Wood, Rev. Charles
 Wood, Miss Ida
 Woodward, Dr. George
 Woodward, Mrs. George
 Wright, Miss Mary H.
 Wright, Mr. Sydney L.

*Deceased.

FREE MUSEUM OF SCIENCE AND ART,

Department of Archaeology and Palaeontology,

UNIVERSITY OF PENNSYLVANIA.

BULLETIN No. 1,

MAY, 1897.

CONTENTS.

	PAGE.
ANNOUNCEMENT,	I
THE PILLARS OF BEN, <i>Dr. Daniel E. Brinton</i> ,	3
THE SO-CALLED "BOW PULLER," IDENTIFIED AS THE GREEK $\mu\beta\rho\mu\eta\xi$, <i>Dr. Daniel E. Brinton</i> ,	10
COLLECTIONS AND PUBLICATIONS:	
AMERICA. UNITED STATES: <i>Delaware Valley, Florida, Georgia,</i> <i>Maine, Maryland, New Jersey, New Mexico</i> ,	16
MEXICO,	20
PERU,	21
ASIA. THE FAR EAST: <i>China, Japan, Korea, Siam</i> ,	24
ISLAND ASIA,	30
BABYLONIA,	31
AFRICA. EGYPT: <i>Savage Tribes</i> ,	36
EUROPE. RUSSIA,	38
SPECIAL COLLECTIONS: <i>Fans, Games, Musical Instruments, Numismatics</i> ,	42
LIBRARY, EXCHANGES, PHOTOGRAPHS, LECTURES,	45
UNIVERSITY ARCHÆOLOGICAL ASSOCIATION,	50

PRINTED FOR THE MUSEUM,

PHILADELPHIA.

1897.

1897.

OFFICERS OF THE MUSEUM.

President,

DR. WILLIAM PEPPER.

Secretary,

MRS. CORNELIUS STEVENSON.

Treasurer,

JOHN SPARHAWK, JR.

Director,

STEWART CULIN.

Curators,

American and Prehistoric Archæology, HENRY C. MERCER.

Asia and General Ethnology, STEWART CULIN.

Babylonia, PROF. HERMAN V. HILPRECHT.

Casts, WILSON EYRE.

Egypt and the Mediterranean, MRS. CORNELIUS STEVENSON.

Glyptics, PROF. MAXWELL SOMMERVILLE.

Musical Instruments, PROF. HUGH A. CLARKE.

Palæontology, JOSEPH WILLCOX.

Case

Shelf

HARVARD UNIVERSITY.



LIBRARY

OF THE

PEABODY MUSEUM OF AMERICAN
ARCHÆOLOGY AND ETHNOLOGY.

GIFT OF

the Museum

Received

July 2. 1897

8

1.

FREE MUSEUM OF SCIENCE AND ART,

Department of Archaeology and Paleontology,
UNIVERSITY OF PENNSYLVANIA.

BULLETIN No. 4.

JUNE, 1898.

CONTENTS.

A SNUFFING-TUBE FROM TIÁHUANACO, <i>Dr. Max Uhle</i> ,	159
NOTE ON THE CRITERIA OF WAMPUM, <i>Dr. Daniel G. Brinton</i> ,	177
AN ARCHÆOLOGICAL APPLICATION OF THE RÖNTGEN RAYS, <i>Stewart Culin</i> ,	183
COLLECTIONS AND PUBLICATIONS:	
AMERICA. CANADA: <i>New Brunswick</i> ,	184
MEXICO,	187
CENTRAL AMERICA: <i>Honduras</i> ,	187
ASIA. THE FAR EAST: <i>China, Thibet</i> ,	187
SPECIAL COLLECTIONS: <i>Fans</i> ,	188
<i>Fire Making and Lighting</i> ,	189
<i>Games</i> ,	189
<i>Numismatics</i> ,	190
LIBRARY,	190
LECTURE:	
THE CURIOSITIES OF AMERICAN COINAGE, <i>A. E. Outerbridge, Jr.</i> ,	191
IN MEMORIAM—DR. ELI BARR LANDIS,	211

PRINTED FOR THE MUSEUM,
PHILADELPHIA.

1898.

THE object of this Bulletin is the publication of new material acquired by the Museum of Science and Art of the University of Pennsylvania with accounts of explorations conducted by the Museum and original investigations based upon its collections. The subscription price is One Dollar per year (four numbers).

Communications should be addressed to

THE EDITOR OF THE BULLETIN,

Museum of Science and Art,

University of Pennsylvania, Philadelphia.

MUS.120.37.6.1

Bulletin

Tozzer Library

AUF8124



3 2044 043 144 245

**This book is not to be
taken from the Library**

5/8/81

